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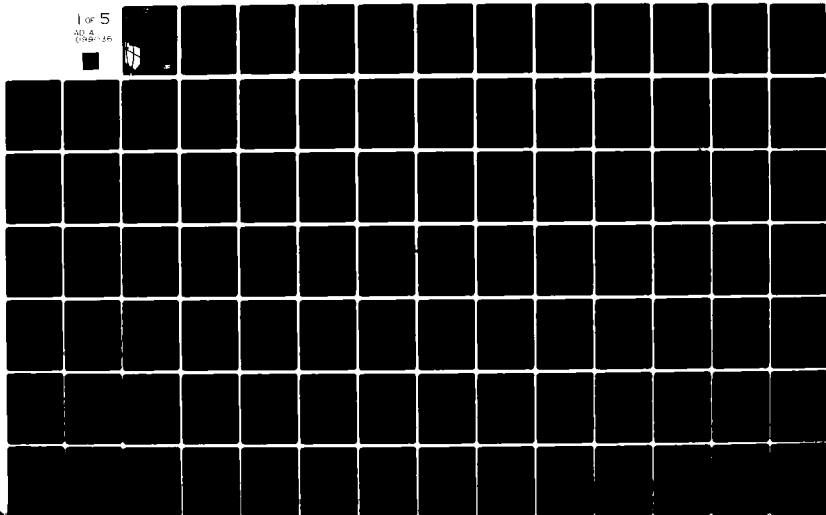
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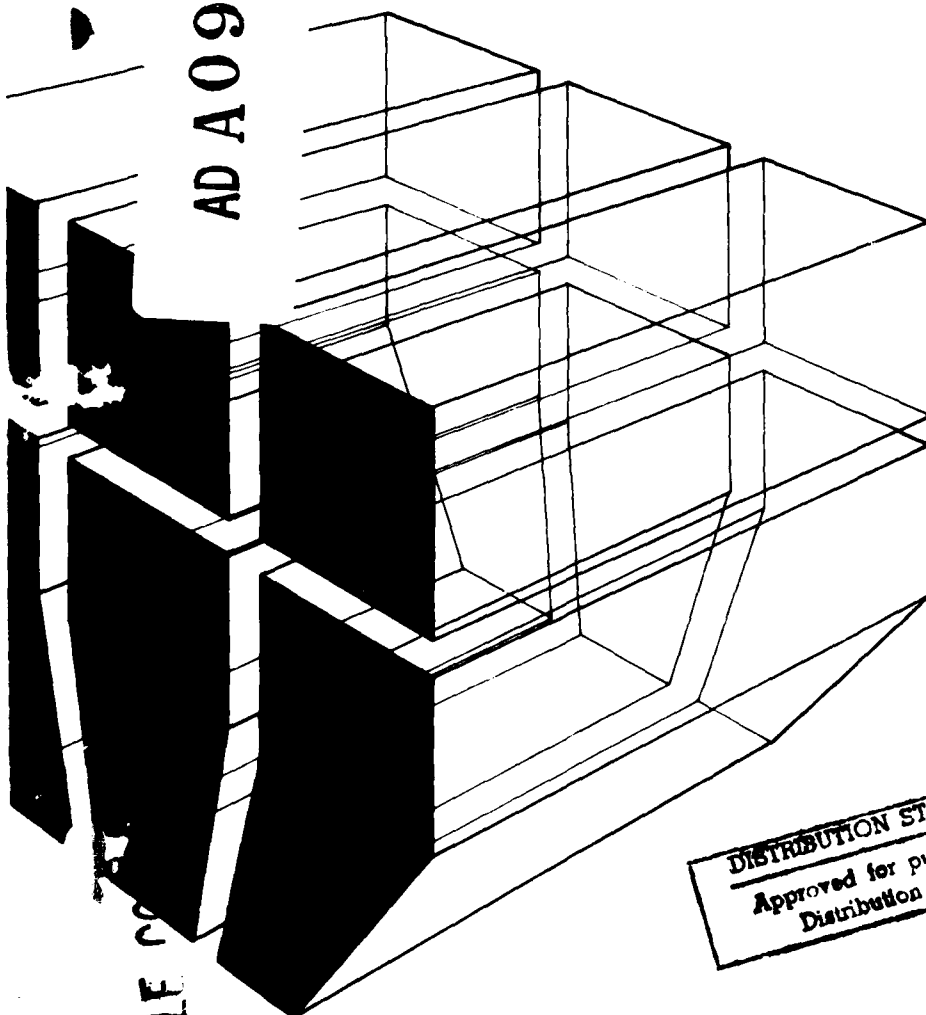
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# UNCLASSIFIED

## SUBJECT INDEX

- \*ACETIC ANHYDRIDE  
Water Management Modifications  
for Acetic Anhydride Manufacture at  
Holston Army Ammunition Plant.  
AD-8031 260L
- \*ACQUSTIC DETECTION  
Analysis of Environmental Noise  
Monitors.  
AD-A040 005
- \*ACQUSTIC DETECTORS  
True-Integrating Environmental  
Noise Monitor and Sound Exposure  
Level Meter. Volume II. Wiring and  
Parts Lists, Parts Layouts, and  
Schematics.  
AD-A072 002
- \*ACQUSTIC MEASUREMENT  
Analysis of Environmental Noise  
Monitors.  
AD-A040 005
- True-Integrating Environmental  
Noise Monitor and Sound-Exposure  
Level Meter. Volume III.  
Microprocessor Program and Data  
Interface Description.  
AD-A083 320
- True-Integrating Environmental  
Noise Monitor and Sound-Exposure  
Level Meter. Volume IV. Mechanical  
Construction and Electrical Check  
Out.  
AD-A083 321
- \*AFGHANISTAN  
SOILS  
Stabilization Studies:  
Afghanistan Soils.  
AD- 745 408
- \*AIR CONDITIONING EQUIPMENT  
Method for Estimating Solar  
Heating and Cooling System  
Performance.  
AD-A026 041
- Shock Resistance of Air-  
Conditioning Units Test Report for  
Ellis and Watts Company,  
Cincinnati, Ohio.
- AD-A075 607
- \*AIR FORCE  
Modification and Extension of  
the Environmental Technical  
Information System (ETIS) for the  
Air Force.  
AD-A079 441
- FOOD DISPENSING  
Dining Facility User-Attitudes  
and Environmental Design Research  
at Travis AFB, California.  
AD- 765 477
- \*AIR FORCE EQUIPMENT  
HANDLING  
Computer Simulation and  
Validation of the Travis Freight  
Terminal Facility.  
AD- 753 486
- \*AIR FORCE FACILITIES  
Comparison of Consumer  
Satisfaction Before and After  
Dining Facility Renovations at  
Travis AFB, California.  
AD- 784 056
- Structural Fire  
Protection/Prevention Consolidation  
Study for Fayetteville, NC Area.  
AD-A018 217
- Computer-Aided Environmental  
Impact Analysis for Air Force  
Research, Development, Test and  
Evaluation Activities: User  
Manual.  
AD-A039 132
- \*AIR FORCE PERSONNEL  
ATTITUDES (PSYCHOLOGY)  
Dining Facility User-Attitudes  
and Environmental Design Research  
at Travis AFB, California.  
AD- 765 477
- \*AIR POLLUTION  
Technical Evaluation Study of  
the Consolidated Field Maintenance  
Facility at Fort Bragg, N.C.  
AD- 772 894
- Air Pollution Engineering Source  
Evaluation of Ammonia Oxidation  
Plant Number 10, Holston Army  
Ammunition Plant, Kingsport,  
Tennessee.  
AD- 774 299
- Air Pollution Survey Guidelines  
for Army Installations.  
AD-A029 633
- Pollution Estimation Factors.  
AD-A033 753
- Fugitive Dust Emissions from  
Construction Haul Roads.  
AD-A037 048
- AIRMOD--A General Program for  
the Rapid Assessment of Airborne  
Pollutants.  
AD-A058 569
- \*AIR POLLUTION CONTROL EQUIPMENT  
Collecting Cost and Performance  
Data on Army New Air Pollution  
Control Equipment.  
AD-A043 171
- Evaluation of Alternatives for  
Restoring the South Boiler House at  
Joliet AAP to High-Sulfur-Coal  
Burning Capability.  
AD-A069 374
- \*AIR TRAFFIC CONTROL SYSTEM ANALYSIS  
Technical Background: Interim  
Criteria for Planning Rotary-Wing  
Aircraft Traffic Patterns, and  
Siting Noise-Sensitive Land Uses.  
AD-A031 449
- User Manual: Interim Procedure  
for Planning Rotary-Wing Aircraft  
Traffic Patterns and Siting Noise-  
Sensitive Land Uses.  
AD-A031 450
- \*AIR TRANSPORTATION  
CARGO  
Activity Networks to Model  
Transportation Systems Subject to  
Facility Constraints.  
AD- 757 628
- A Stochastic Network to Model  
Air Cargo Terminals.  
AD- 757 629

SUBJECT INDEX-1  
UNCLASSIFIED 099062

# UNCLASSIFIED

GROUND SUPPORT EQUIPMENT  
Air Cargo Support Facilities for  
Army Airlift Operations.  
AD- 762 551

\*AIRCRAFT CARRIERS  
Habitability Improvements for  
Aircraft Carrier Messdecks.  
AD-A078 422

\*AIRCRAFT LANDINGS  
LANDING FIELDS  
Aircraft-Pavement Interaction  
Studies, Phase I: A Finite-Element  
Model of a Jointed Concrete  
Pavement on a Non-Linear Viscous  
Subgrade (Dynamic Interaction of  
Aircraft-Pavement Systems).  
AD- 764 243

\*AIRCRAFT NOISE  
Technical Background: Interim  
Criteria for Planning Rotary-Wing  
Aircraft Traffic Patterns, and  
Siting Noise-Sensitive Land Uses.  
AD-A031 449  
User Manual: Interim Procedure  
for Planning Rotary-Wing Aircraft  
Traffic Patterns and Siting Noise-  
Sensitive Land Uses.  
AD-A031 450  
Rotary-Wing Aircraft Operational  
Noise Data.  
AD-A051 999

\*AIRFIELDS  
Computer Program for the Finite  
Element Analysis of Concrete  
Airfield Pavements.  
AD- 771 160

\*AIRPORTS  
Computer-Aided Environmental  
Impact Analysis for Air Force Base  
Realignment Activities: User  
Manual.  
AD-A027 431  
Reliability Analysis for  
Airfield Lighting Systems.  
AD-A054 309  
Development of a Pavement

Maintenance Management System.  
Volume V. Proposed Revision of  
Chapter 3, AFR 93-5.  
AD-A058 860

CARGO  
A Stochastic Network to Model  
Air Cargo Terminals,  
AD- 753 385

\*ALIGNMENT  
Aligned Ferrous Martensite.  
AD-A030 314

\*ALUMINUM ALLOYS  
A Unified Approach for Modeling  
Inelastic Behavior of Structural  
Metals under Complex Cyclic  
Loadings.  
AD-A040 741  
Fracture Characteristics of ASTM  
A-607 Pipe-Line Steel, ASTM A-516  
Structural Steel, and ASTM B-209,  
Aluminum Alloys 5083 and 6061.  
AD-A055 520

\*AMMONIA  
Comparative Evaluation of  
Military and Commercial Ammonia  
Oxidation Plants Using the Pressure  
Process.  
AD-A005 045

\*ANODIC COATINGS  
Coatings and Cathodic Protection  
of Piling in Seawater: Results of  
5-Year Exposure.  
AD-A038 832

\*ANTENNA COMPONENTS  
Advanced Development Tests of a  
Composite Material for Antenna  
Element Radomes.  
AD-B036 607L

\*ANTIMISSILE DEFENSE SYSTEMS  
Facility Simulation Model for  
Advanced BMD Systems. Volume I.  
Executive Summary.  
AD-A009 743  
Facility Simulation Model for

Advanced BMD Systems. Volume IIA.  
Executive Control Module: User's  
Manual.  
AD-A009 744

Facility Simulation Model for  
Advanced BMD Systems. Volume IIB.  
Executive Control Module: Program  
Reference Manual.  
AD-A009 745

Facility Simulation Model for  
Advanced BMD Systems. Volume IIC.  
Executive Control Module: Program  
Listing.  
AD-A009 746

Facility Simulation Model for  
Advanced BMD Systems. Volume IIIA.  
Structural Module: User's Manual.  
AD-A009 747

Facility Simulation Model for  
Advanced BMD Systems. Volume IIV.  
Power Module. Program Reference  
Manual.  
AD-A009 748

Facility Simulation Model for  
Advanced BMD Systems. Volume VI:  
Miscellaneous Module.  
AD-A010 632

Facility Simulation Model for  
Advanced BMD Systems. Volume IIIC:  
Structural Module: Program  
Listing.  
AD-A010 713

Facility Simulation Model for  
Advanced BMD Systems. Volume VA:  
HVAC/PC Module: User's Manual.  
AD-A010 714

Facility Simulation Model for  
Advanced BMD Systems. Volume VB:  
HVAC/PC Module: Program Reference  
Manual.  
AD-A010 715

Facility Simulation Model for  
Advanced BMD Systems. Volume IIIB.  
Structural Module: Program  
Reference Manual.  
AD-A011 226

Facility Simulation Model for  
Advanced BMD Systems. Volume IVA.  
Power Module: User's Manual.  
AD-A011 227  
Facility Simulation Model for

SUBJECT INDEX-2  
UNCLASSIFIED 099062

AIR-ANT

# UNCLASSIFIED

Advanced BMD Systems. Volume IVC. Power Module: Program Listing. AD-A011 231

Facility Simulation Model for Advanced BMD Systems. Volume VC. HVAC/PC Module: Program Listing. AD-A011 232

Facility Simulation Model for Advanced BMD Systems. Volume VIII. Operational Manual. AD-A011 235

Facility Simulation Model for Advanced BMD Systems: Operation and Maintenance Program (DANDM). AD-A014 140

Facility Simulation Model for Advanced BMD Systems. Volume VII: Data Base. AD-A015 973

LAUNCHING SITES

Metallic Shear Walls for BMD Ground Support Systems. AD- 768 720

LOGISTICS

Optimization of Resource Allocation in Maintenance Management Logistics Systems. AD- 750 386

Optimization of Resource Allocation in Maintenance Management Logistics Systems. AD- 757 169

\*AQUATIC ANIMALS

Ecological Baseline, Fort Hood, Texas. AD-A088 271

\*AQUATIC PLANTS

Ecological Baseline, Fort Hood, Texas. AD-A088 271

\*ARC WELDING

Determination of Arc Voltage, Amperage, and Travel Speed Limits by Bead-on-Plate Welding. AD-A033 684

Determination of the Effect of Current and Travel Speed of Shielded Metal-Arc Welding on the Mechanical Properties of A36, A516, and A514 Steels. AD-A063 213

\*ARCHITECTURE

An Evaluation of Computer-Aided Architectural Systems. AD- 785 551

An Evaluation of Architectural Information Systems. AD-A001 616

Conceptualization of Habitability Expressions for the Habitability Data Base. AD-A029 661

An Interim Guide to Industrialized Building Systems. AD-A034 131

Development of a Prototype Habitability Data Base. AD-A058 824

Literature Research on Living, Working, and Training Facility Environments. AD-A059 058

\*ARMY

Environmental Impact Assessment Study for Army Military Programs. AD- 771 062

Automated Design and Construction Progress Reporting Procedures. Volume I. AD- 771 178

Modification and Extension of the Environmental Technical Information System (ETIS) for the Air Force. AD-A075 441

PREFABRICATED BUILDINGS

Study on the potential use of Industrialized Building for the Department of the Army. Volume I: Summary. AD- 732 853

Study on the potential Use of Industrialized Building for the Department of the Army. Volume II:

Advanced BMD Systems. Volume IVC. Power Module: Program Listing. AD-A011 231

Facility Simulation Model for Advanced BMD Systems. Volume VC. HVAC/PC Module: Program Listing. AD-A011 232

Facility Simulation Model for Advanced BMD Systems. Volume VIII. Operational Manual. AD-A011 235

Facility Simulation Model for Advanced BMD Systems: Operation and Maintenance Program (DANDM). AD-A014 140

Facility Simulation Model for Advanced BMD Systems. Volume VII: Data Base. AD-A015 973

LAUNCHING SITES

Metallic Shear Walls for BMD Ground Support Systems. AD- 768 720

LOGISTICS

Optimization of Resource Allocation in Maintenance Management Logistics Systems. AD- 750 386

Optimization of Resource Allocation in Maintenance Management Logistics Systems. AD- 757 169

\*AQUATIC ANIMALS

Ecological Baseline, Fort Hood, Texas. AD-A088 271

\*AQUATIC PLANTS

Ecological Baseline, Fort Hood, Texas. AD-A088 271

\*ARC WELDING

Determination of Arc Voltage, Amperage, and Travel Speed Limits by Bead-on-Plate Welding. AD-A033 684

Determination of the Effect of

Narrative. AD- 732 854

Study on the Potential Use of Industrialized Building for the Department of the Army. Volume III: Appendices. AD- 732 855

\*ARMY BUDGETS

Zero Base Budget, Civil Works Operation and Maintenance System Executive Summary. AD-A088 634

\*ARMY COL-5 OF ENGINEERS

Engineering and Design Performance Analysis. AD-A035 208

Real Estate Cost Estimating Techniques for PL 91-646 Relocation Costs. AD-A075 511

\*ARMY EQUIPMENT

Fragility Data Analysis and Testing Guidelines for Essential Equipment Used in Critical Facilities. AD-A038 768

Methodology for Establishing Equipment Utilization Standards. AD-A058 559

\*ARMY OPERATIONS

Guidance for Selection of Equipment Fleet. AD- 770 927

Selection and Design Criteria for the Army Facilities Components System. AD- 779 511

Consolidation of RPMA at Fayetteville, NC. Volume II. Summary, Cost Analysis for Consolidation of RPMA in the Fayetteville, NC Area. AD-A030 518

Consolidation of RPMA at Fayetteville, NC. Volume III. Cost Analysis Support and Backup Data for the Consolidation of RPMA in

SUBJECT INDEX-3  
UNCLASSIFIED 099062

AQU-ARM

# UNCLASSIFIED

- the Fayetteville, NC Area.  
AD-A030 519  
Fort Lee Enlisted Personnel  
Dining Facility Modernization  
Evaluation Program.  
AD-A042 580  
Mitigation of Noise Impact via  
Operational Changes.  
AD-A074 480  
Hazardous Waste Surveys of Two  
Army Installations and an Army  
Hospital.  
AD-A088 260
- LOGISTICS  
Air Cargo Support Facilities for  
Army Airlift Operations.  
AD- 762 551
- \*ARMY PLANNING  
Computer-Aided Environmental  
Impact Analysis for Mission Change,  
Operations and Maintenance, and  
Training Activities: User Manual.  
AD-A022 698  
The Economic Impact Forecast  
System: Description and User  
Instructions.  
AD-A027 139  
Construction Scheduling of AFCS  
Facilities--Skill Report.  
AD-A028 380  
Consolidation of RPMA at  
Fayetteville, NC. Volume II.  
Summary Cost Analysis for  
Consolidation of RPMA in the  
Fayetteville, NC Area.  
AD-A030 518  
Consolidation of RPMA at  
Fayetteville, NC. Volume III. Cost  
Analysis Support and Backup Data  
for the Consolidation of RPMA in  
the Fayetteville, NC Area.  
AD-A030 519  
Information Flow for Military  
Construction.  
AD-A033 363  
Analysis of Central Total Energy  
Systems at Military Facilities.  
AD-A044 813  
Field Use of the Environmental
- Impact Computer System,  
AD-A056 406  
Data Requirements for Army Land  
Use Planning and Management.  
AD-A062 599  
Water Quality Data for Army  
Military Installations.  
AD-A067 253  
Development of Guidelines for  
the Army Timber Harvesting Program.  
AD-A071 637
- \*ARMY PROCUREMENT  
Monitoring of the Fort Knox  
Industrialized BQ Project--Design  
and Construction Phases.  
AD-A019 929  
A Systems Approach to  
Construction of Recreational Area  
Facilities. Volume I. Program  
Methodology.  
AD-A039 363  
Construction Contract Type  
Selection Procedures.  
AD-A066 384
- \*ARMY RESEARCH  
Computer-Aided Environmental  
Impact Analysis for Industrial,  
Procurement, and Research,  
Development, Test, and Evaluation  
Activities: User Manual.  
AD-A056 997
- \*ARTILLERY FIRE  
Mitigation of Noise Impact via  
Operational Changes.  
AD-A074 480
- \*ATMOSPHERES  
The Statistics of Amplitude and  
Spectrum of Blasts Propagated in  
the Atmosphere. Volume I.  
AD-A033 475
- \*ATMOSPHERIC CORROSION  
Effects of Corrosion on Military  
Facilities of the Presidio of San  
Francisco.  
AD-A058 727
- \*ATTENUATION  
Radio Frequency Shielding Tests  
of System Technology Test Facility  
at Meck Island, Marshall Islands.  
AD-A041 450
- \*ATTITUDES(PSYCHOLOGY)  
Employee-Attitude and Office  
Environment Analyses for the  
Development of Human and  
Architectural Requirements for the  
Buffalo District Office, Buffalo,  
N.Y. Buffalo Office Study Part I.  
AD- 775 430  
Comparison of Consumer  
Satisfaction Before and After  
Dining Facility Renovations at  
Travis AFB, California.  
AD- 784 056  
Occupants Opinions of Military  
Housing: Responses to Open-Ended  
Questions in Army Portion of Tri-  
Services Survey.  
AD- 784 059  
Army Family Housing:  
Preferences and Attitudes about  
Housing Interiors. Volume II.  
AD-A007 741  
Army Family Housing:  
Preferences and Attitudes About  
Housing Interiors. Volume III:  
Predictors of Satisfaction with  
Housing Interiors.  
AD-A011 187
- AIR FORCE PERSONNEL  
Dining Facility User-Attitudes  
and Environmental Design Research  
at Travis AFB, California.  
AD- 765 477
- MILITARY RATINGS  
A Methodological Investigation  
of the Use of the Semantic  
Differential and Time-Lapse  
Photography to Measure Attitude and  
Behavior in a Dining Hall at  
Chanute AFB. (Evaluation of  
Occupant Interaction with Facility  
Environments).

SUBJECT INDEX-4  
UNCLASSIFIED 099062

ARM-ATT

# UNCLASSIFIED

- AD- 765 420
- \*AUTOMATION
  - Automated Design and Construction Progress Reporting Procedures. Volume I.
  - AD- 771 178
  - Investigation of Automated Evaluation of Field Weld Radiographs.
  - AD-A028 605
- \*BARRACKS
  - Market Evaluation Study: Solar Domestic Water Heaters for DOD barracks.
  - AD-A036 479
- \*BEAMS(STRUCTURAL)
  - Steel Fibers as Web Reinforcement in Reinforced Concrete.
  - AD-A056 496
- REINFORCED CONCRETE
  - Polymer Concrete-Reinforced Concrete Composite Beams.
  - AD- 762 114
- \*BEHAVIOR
  - AIR FORCE PERSONNEL
  - A Methodological Investigation of the Use of the Semantic Differential and Time-Lapse Photography to Measure Attitude and Behavior in a Dining Hall at Chanute AFB. (Evaluation of Occupant Interaction with Facility Environments).
  - AD- 765 420
- \*BIODETERIORATION
  - Densified Biomass as an Alternative Army Heating and Power Plant Fuel.
  - AD-A083 317
- \*BLAST
  - Predicting Community Response to Blast Noise.
  - AD- 773 690
- Hypothetical Case Studies of Operational Changes to Reduce Noise Levels.
- AD-A055 066
- Compilation of Operational Blast Noise Data.
- AD-A080 429
- \*BOILERS
  - Technical Evaluation of the Feasibility of Burning Eco-Fuel at Philadelphia Naval Shipyard.
  - AD-A015 614
  - Collecting Cost and Performance Data on Army New Air Pollution Control Equipment.
  - AD-A043 171
  - Evaluation of Alternatives for Restoring the South Boiler House at Joliet AAP to High-Sulfur-Coal Burning Capability.
  - AD-A069 374
- \*BOLTS
  - Failure Analysis of Tainter Gate Cable-Adjusting Bolts.
  - AD-A008 996
- \*BONDING
  - Bonding between Cement Hydrates and Steel.
  - AD-A021 651
  - Effects of Temperature Cycling on Selected Conductive Flooring.
  - AD-A029 409
- \*BOOMS(EQUIPMENT)
  - Evaluation of Load-Indicating Devices (LIDS) for Mobile Construction Cranes.
  - AD-A032 569
- \*BRIDGES
  - A Heuristic Model for Predicting Bridge Construction Requirements.
  - AD- 782 913
  - Design Criteria for Theater of Operations Glued-Laminated Timber Highway Bridges. Volume I.
  - AD-A035 687
  - Design Criteria for Theater of
- Operations Glued-Laminated Timber Highway Bridges. Volume II. Appendices A-E.
- AD-A035 688
- Design Criteria for Theater of Operations Steel Highway Bridges. Volume I.
- AD-A035 763
- Design Criteria for Theater of Operations Steel Highway Bridges. Volume II. Appendices A-I.
- AD-A035 779
- \*BUILDINGS
  - Waterproofing Materials for Prevention of Windblown Rain Penetration through Masonry Walls.
  - AD-A008 997
  - Estimating the Life Expectancy of Facilities.
  - AD-A009 522
  - An Investigation of Techniques for Achieving Exposed Aggregate Surfaces for Site-Cast Concrete.
  - AD-A012 110
  - Concept Development for Structures on Expansive Soils by the Pattern Language Design Methodology.
  - AD-A017 045
  - Conceptualization for the Generation of Habitability Requirements.
  - AD-A030 091
  - Procuring Today's Building Technology. Volume II.
  - AD-A030 520
  - A Preliminary Concept for a Design Criteria Management System.
  - AD-A032 125
  - Programming for Habitability: Symposium Proceedings.
  - AD-A034 135
  - Seismic Structural Design/Analysis Guidelines for Buildings.
  - AD-A037 747
  - Alternative Theater of Operations Building Systems.
  - AD-A042 312
  - Guidelines for Evaluating the

SUBJECT INDEX-5  
UNCLASSIFIED 099062

AUT-8U1

# UNCLASSIFIED

Seismic Resistance of Existing Buildings.  
AD-A042 873

The Building Loads Analysis and System Thermo-Dynamics (BLAST) Program. Volume II. Reference Manual.  
AD-A048 982

Field Test of Building Energy Analysis Tools and Procedures.  
AD-A055 095

The Building Loads Analysis and System Thermodynamics Program (BLAST). Release Number 1.  
AD-A056 226

Investigation of Reflective Solar Control Films for Windows.  
AD-A056 620

Methods for Seismic Strengthening of Buildings.  
AD-A058 344

Comparison of Building Loads Analysis and System Thermodynamics (BLAST) Computer Program Simulations and Measured Energy Use for Army Buildings.  
AD-A085 573

Parametric Analysis of Energy Consumption in Army Buildings by the Building Loads Analysis and System Thermodynamics (BLAST) computer Program.  
AD-A089 406

LIFE EXPECTANCY  
Life Expectancy of Facilities.  
AD- 760 489

WALLS  
Metallic Shear Walls for BMD Ground Support Systems.  
AD- 768 720

\*BURMA  
SOILS  
Burma Soils. A Study of the Effects of Lime and Cement on Paddy and Laterite Material.  
AD- 720 993

\*BUTT WELDING

The Effects of Base Metal Notch Orientation and Acuity and Weld Porosity on the Dynamic Tear Toughness of A514F Steel.  
AD-A037 046

\*CARBON STEELS  
Determination of the Effect of Current and Travel Speed of Gas Metal-Arc Welding on the Mechanical Properties of A36, A516, and A514 Steels.  
AD-A085 342

\*CARGO  
AIR TRANSPORTATION  
Activity Networks to Model Transportation Systems Subject to Facility Constraints.  
AD- 757 628

A Stochastic Network to Model Air Cargo Terminals.  
AD- 757 629  
Air Cargo Support Facilities for Army Airlift Operations.  
AD- 762 551

HANDLING  
A Stochastic Network to Model Air Cargo Terminals.  
AD- 750 365  
Computer Simulation and Validation of the Travis Freight Terminal Facility.  
AD- 759 486

TERMINAL FLIGHT FACILITIES  
Development of a Standard Data Base and Computer Simulation Model for an Air Cargo Terminal.  
AD- 753 925

\*CATALOGS  
Effective Use of Systems Building Technology: Open Systems Catalog. Volume II. Prototype Performance Specifications.  
AD-A040 757  
Effective Use of Systems Building Technology: Open Systems Catalog. Volume III. Building

Products Information.  
AD-A040 758

\*CATHODIC PROTECTION  
First Annual Inspection of Buzzards Bay Pillings.  
AD-A024 381  
Coatings and Cathodic Protection of Pillings in Seawater: Results of 5-Year Exposure.  
AD-A038 832

Corrosion Control in Civil Works: Cathodic Protection.  
AD-A045 184

Cathodic Protection Design for Brackish Water Systems: Fresh Water Bayou Lock.  
AD-A054 307

Cathodic Protection of Civil Works Structures.  
AD-A080 057

\*CEMENTS  
Laboratory Evaluation of a Chemical Technique to Determine Water and Cement Content of Fresh Concrete.  
AD- 784 055

Bonding between Cement Hydrates and Steel.  
AD-A021 651

Operations Guide - Water and Cement Content of Fresh Concrete.  
AD-A022 697

\*CHEMICAL ANALYSIS  
Revised Operations Guide for a Chemical Technique to Determine Water and Cement Content of Fresh Concrete.  
AD-A039 120

A Comparative Evaluation of the Neutron/Gamma and Kelly-Vail Techniques for Determining Water and Cement Content of Fresh Concrete.  
AD-A040 061

\*CHEMICAL COMPOSITION  
Revised Operations Guide for a Chemical Technique to Determine

SUBJECT INDEX-6  
UNCLASSIFIED 099062

BUR-CHE

# UNCLASSIFIED

Water and Cement Concrete of Fresh Concrete.  
AD-A039 120

\*CIRCUIT BREAKERS  
Investigation of Ground Fault Circuit Interrupter.  
AD-A031 781

\*CIRCUITS  
Development of Conduit Design Analytical Procedure.  
AD-A056 218

\*CIVIL ENGINEERING  
Army Corps of Engineers, Box 4005, Champaign, Illinois 61820. Telephone: AC 217-352-6511, Fts 958-7011  
Guidelines for Developing Design Earthquake Response Spectra.  
AD-A012 728  
Modal Analysis Methods in Seismic Design for Buildings.  
AD-A012 732  
Civil Works Construction Cost Index System (CWCCIS).  
AD-A048 102  
Deficiency Judgments in Real Estate Eminent Domain Proceedings.  
AD-A055 874

Material, Design, and Construction Guidelines for Vertical Construction in Desert and Tropical Regions.  
AD-A057 957  
Computer-Aided Engineering and Architectural Design System (CAEADS). Volume II. Concise Review.  
AD-A067 719  
Development of a Pavement Condition Rating Procedure for Roads, Streets, and Parking Lots. Volume II. Distress Identification Manual.  
AD-A074 171

\*CLAY  
STABILIZATION

Lime-Cement Combination Stabilization.  
AD- 762 552

\*CLAY MINERALS  
Evaluation of Bentonite Clay for Waterproofing Foundation Walls Below Grade.  
AD-A011 180

STABILIZATION  
Stabilization of Contaminated Clays.  
AD- 745 902

\*CLEANING COMPOUNDS  
MATERIALS  
Laboratory and Field Study of Rubber Removal Compounds.  
AD- 890 034L

\*CLOSURES  
Failure Analysis of Tainter Gate Cable-Adjusting Bolts.  
AD-A008 996

\*COAL  
Application of Modern Coal Technologies to Military Facilities. Volume I. Summary of findings.  
AD-A055 560  
Project Development Guidelines for Converting Army Installations to Coal Use.  
AD-A068 025  
Evaluation of Alternatives for Restoring the South Boiler House at Joliet AAP to High-Sulfur-Coal Burning Capability.  
AD-A065 374

\*COAL TAR  
Fume Emissions from Coal-Tar Pitch.  
AD-A022 844  
Review of Formulation and Testing Procedures for Coal Tar Epoxy (SSPC Paint 16-68T).  
AD-A030 566

\*COATINGS  
Investigation of Reflective Solar Control Films for Windows.  
AD-A056 620

\*COMBAT NOISE  
Compilation of Operational Blast Noise Data.  
AD-A080 429

\*COMBAT VEHICLES  
Earthmoving, Lifting, and Pulling Requirements for the Combat Engineer Vehicle (CEV).  
AD-B042 190L

\*COMMUNITY RELATIONS  
Predicting Community Response to Blast Noise.  
AD- 773 690  
A Practical Application of Community Noise Analyses -- Case Study of Allegheny County, Pennsylvania.  
AD-A038 232

\*COMPACTORS  
Sanitary Landfill Compactor Evaluation.  
AD-A067 697

\*COMPOSITE MATERIALS  
Development of a Composite Material for Construction of Antenna Element Radomes.  
AD-B020 359L  
Fabrication and Testing of a Composite Material Radome.  
AD-B023 059L  
Advanced Development Tests of a Composite Material for Antenna Element Radomes.  
AD-B036 607L

POLYESTER PLASTICS  
Creep Characteristics of Polyester Concretes.  
AD- 752 454

\*COMPUTER AIDED DESIGN  
Computer-Aided Environmental

SUBJECT INDEX-7  
UNCLASSIFIED 099062

CIR-COM



# UNCLASSIFIED

Impact Analysis for Air Force Base Realignment Activities: User Manual.  
AD-A027 431

Computer-Aided Final Design Cost Estimating System Overview.  
AD-A040 119

Field Participation in CAEADS.  
AD-A042 665

Computer-Aided Engineering and Architectural Design System (CAEADS). Volume I. Summary.  
AD-A065 827

Computer-Aided Engineering and Architectural Design System (CAEADS). Volume II. Concise Review.  
AD-A067 719

\*COMPUTER AIDED DIAGNOSIS  
Computer-Aided Environmental Impact Analysis for Industrial, Procurement, and Research, Development, Test, and Evaluation Activities: User Manual.  
AD-A056 997

\*COMPUTER AIDED INSTRUCTION  
First Annual Summary of CAEADS development Activities.  
AD-A064 650

Economic Impact Forecast System, Version 2.0: User's Manual.  
AD-A073 667

\*COMPUTER APPLICATIONS  
An Evaluation of Computer-Aided Architectural Systems.  
AD- 785 551

Evaluation System for Proposed Theater of Operations Structures. Volume III: User's Manual.  
AD-A006 145

Specification Preparation Methods--State of the Art.  
AD-A016 919

Computer-Aided Environmental Impact Analysis for Mission Change, Operations and Maintenance, and Training Activities: User Manual.  
AD-A022 698

Computer-Aided Environmental Impact Analysis for Air Force Research, Development, Test and Evaluation Activities: User Manual.  
AD-A039 132

Automated Pavement Maintenance and Repair Management System.  
AD-A042 582

Construction Specification Preparation within the EDITSPEC system.  
AD-A045 183

Pollution Abatement Management System--Concept Definition.  
AD-A055 565

Field Use of the Environmental Impact Computer System.  
AD-A056 406

Interactive Environmental Impact Computer System (EICS) User Manual.  
AD-A074 890

\*COMPUTER COMMUNICATIONS  
A Survey of the Properties of Computer Communication Protocols. Volume II. Future Developments of Computer Network Protocols.  
AD-A061 647

A Survey of the Properties of Computer Communication Protocols. Volume I. The Function, Properties, Specification, and Analysis Methods of Computer Communication Protocols.  
AD-A063 092

\*COMPUTER PROGRAM DOCUMENTATION  
Automated Data Processing System (ADPS): Documentation Standards.  
AD-A056 089

System Documentation for Computer-Aided Environmental Legislative Data System.  
AD-A061 158

The Automated Documentation System--User Manual.  
AD-A067 203

\*COMPUTER PROGRAMMING  
User Manual for LIFE1 Computer

Program.  
AD- 774 849

The Building Loads Analysis and System Thermo-Dynamics (BLAST) Program. Volume II. Reference Manual.  
AD-A048 982

HANDLING  
Development of a Standard Data Base and Computer Simulation Model for an Air Cargo Terminal.  
AD- 753 925

\*COMPUTER PROGRAMS  
Computer Program for the Finite Element Analysis of Concrete Airfield Pavements.  
AD- 771 160

LIFE2 User's Manual.  
AD-A023 186

Use of the Building Loads Analysis and System Thermo-Dynamics Program to Perform Total Energy System Analysis.  
AD-A040 744

Field Test of Building Energy Analysis Tools and Procedures.  
AD-A055 095

The Building Loads Analysis and System Thermo-Dynamics Program (BLAST). Release Number 1.  
AD-A056 226

Systems Approach to Life-Cycle Design of Pavements. Volume III. LIFE2 Program Listing.  
AD-A064 698

Systems Approach to Life-Cycle Design of Pavements. Volume II. LIFE2 System Documentation.  
AD-A067 691

The Building Loads Analysis and System Thermo-Dynamics (BLAST) Program. Version 2.0. Users Manual. Volume I.  
AD-A072 272

The Building Loads Analysis and System Thermo-Dynamics (BLAST) program. Version 2.3. Users Manual. Volume II.  
AD-A072 273

SUBJECT INDEX-8  
UNCLASSIFIED 099062

COM-COM

# UNCLASSIFIED

The Blast Noise Prediction  
Program: User Reference Manual.  
AD-A074 050

True-Integrating Environmental  
Noise Monitor and Sound-Exposure  
Level Meter. Volume III.  
Microprocessor Program and Data  
Interface Description.  
AD-A083 320

MANAGEMENT INFORMATION SYSTEMS  
Documentation of Extended  
Analysis and Planning Subroutines  
for Onsite Management Records  
System (OMRS) - September 1972.  
AD- 769 599

## \*COMPUTERIZED SIMULATION

Facility Simulation Model for  
Advanced BMD Systems. Volume I.  
Executive Summary.  
AD-A009 743

Facility Simulation Model for  
Advanced BMD Systems. Volume IIA.  
Executive Control Module: User's  
Manual.  
AD-A009 744

Facility Simulation Model for  
Advanced BMD Systems. Volume IIB.  
Executive Control Module: Program  
Reference Manual.  
AD-A009 745

Facility Simulation Model for  
Advanced BMD Systems. Volume IIC.  
Executive Control Module: Program  
Listing.  
AD-A009 746

Facility Simulation Model for  
Advanced BMD Systems. Volume IIIA.  
Structural Module: User's Manual.  
AD-A009 747

Facility Simulation Model for  
Advanced BMD Systems. Volume IIB.  
Power Module. Program Reference  
Manual.  
AD-A009 748

Facility Simulation Model for  
Advanced BMD Systems. Volume VI:  
Miscellaneous Module.  
AD-A010 632

Facility Simulation Model for

Advanced BMD Systems. Volume IIIB.  
Structural Module: Program  
Reference Manual.  
AD-A011 226

Facility Simulation Model for  
Advanced BMD Systems. Volume IVA.  
Power Module: User's Manual.  
AD-A011 227

Facility Simulation Model for  
Advanced BMD Systems. Volume IVC.  
Power Module: Program Listing.  
AD-A011 231

Facility Simulation Model for  
Advanced BMD Systems. Volume VC.  
HVAC/PC Module: Program Listing.  
AD-A011 232

Facility Simulation Model for  
Advanced BMD Systems. Volume VIII.  
Operational Manual.  
AD-A011 235

Facility Simulation Model for  
Advanced BMD Systems: Operation and  
Maintenance Program (OANDM).  
AD-A014 140

Facility Simulation Model for  
Advanced BMD Systems. Volume VII:  
Data Base.  
AD-A015 973

Design of Solar Heating and  
Cooling Systems.  
AD-A062 719

## \*CONCRETE

Computer Program for the Finite  
Element Analysis of Concrete  
Airfield Pavements.  
AD- 771 160

Development of a Design Manual  
for Concrete Floor Slabs on Grade.  
AD- 773 715

Laboratory Evaluation of a  
Chemical Technique to Determine  
Water and Cement Content of Fresh  
Concrete.  
AD- 784 055

Evaluation of a Chemical  
Technique to Determine Water and  
Cement Content of Fresh Concrete.  
AD-A005 576

An Evaluation of the Fracture of  
Plain Concrete, Fibrous Concrete,  
and Mortar Using the Scanning  
Electron Microscope.  
AD-A007 742

Rapid Testing of Fresh Concrete.  
AD-A009 702

An Investigation of Techniques  
for Achieving Exposed Aggregate  
Surfaces for Site-Cast Concrete.  
AD-A012 110

Technical Information Pamphlet  
on Fibrous Concrete Overlays--Fort  
Hood Project.  
AD-A015 469

Study of Anticulated Concrete  
Revetment Mattress: Test and  
Analysis - Results of FY 1974  
Program.  
AD-A021 774

Operations Guide - Water and  
Cement Content of Fresh Concrete.  
AD-A022 697

Ballistics Tests of Fibrous  
Concrete Dome and Plate Specimens.  
AD-A025 209

Effects of Temperature Cycling  
on Selected Conductive Flooring.  
AD-A029 409

Revised Operations Guide for a  
Chemical Technique to Determine  
Water and Cement Content of Fresh  
Concrete.  
AD-A039 120

A Comparative Evaluation of the  
Neutron/Gamma and Kelly-Vail  
Techniques for Determining Water  
and Cement Content of Fresh  
Concrete.  
AD-A040 061

Rapid Construction for Hardening  
Above-Ground Facilities to Small  
Arms Fire.  
AD-A054 306

Recommendations for Concrete  
Forming Kit for Theater of  
Operations Applications.  
AD-A058 832

Investigation of Materials for  
Waterproofing Leaky Concrete  
Ammunition-Storage Bunkers from the  
Inside.  
AD-A064 731

SUBJECT INDEX-9  
UNCLASSIFIED 099062

COM-CON

# UNCLASSIFIED

**ASPHALT**  
Study of Reflection Cracking in Asphaltic Concrete Overlay Pavements, Phase I.  
AD- 894 275L

**COSTS**  
Cost Performance Analysis of Portland Cement Concrete-Fibrous Polyester Concrete Material System (Sandwich Panels).  
AD- 765 473

**FRACTURE(MECHANICS)**  
Fracture Mechanics Applicability to Portland Cement Concretes.  
AD- 750 356  
Fracture Mechanics Applicability to Portland Cement Concretes.  
AD- 757 630

**MAINTENANCE**  
Materials and Procedures for the Repair of Spalls in Concrete.  
AD- 759 132

**POLYESTER PLASTICS**  
Creep Characteristics of Polyester Concretes.  
AD- 752 454  
Development and Evaluation of a High-Strength Polyester Synthetic Concrete.  
AD- 867 374L

**\*CONDUCTIVITY**  
Comparison of Selected Conductive Polyolefin and Lead Floorings.  
AD-A033 757

**\*CONDUITS**  
Development of Conduit Design Analytical Procedure.  
AD-A056 218

**\*CONSTRUCTION**  
An Integrated Approach to Construction Management.  
AD- 770 374  
Evaluation of Projects for

Counter-Seasonality Measures.  
AD- 771 909

Nondestructive Testing of Construction Materials and Operations.  
AD- 774 847

A Heuristic Model for Predicting Bridge Construction Requirements.  
AD- 782 913

Computer-Based Specifications: Cost Analysis Study.  
AD- 786 551

Army Corps of Engineers, Box 4005, Champaign, Illinois 61820.  
Telephone: AC 217-352-6511, Fts 958-7011  
AD- 990 800

Development of the Military Construction Data System (MCDS). Part I.  
AD-A000 710

Significance Ranking of Changes in the Building Industry.  
AD-A003 991

Computer-Aided Environmental Impact Analysis for Construction Activities: User Manual.  
AD-A008 988

Construction Noise: Specification, Control, Measurement, and Mitigation.  
AD-A010 629

Environmental Protection Guidelines for the Resident Engineer.  
AD-A012 109

Environmental Protection Guidelines for Construction Contract Specification Writers.  
AD-A014 146

Procedures for Reviewing Environmental Impact Assessments and Statements for Construction Projects.  
AD-A015 020

ADP Manual for the Automated Military Construction Progress Reporting System (AMPRS).  
AD-A018 437  
Reference Manual for the Automated Military Progress

Reporting System (AMPRS).  
AD-A018 438

Conversion Instructions for the Automated Military Construction Progress Reporting System (AMPRS).  
AD-A018 439

Users Manual for the Automated Military Construction Progress Reporting System (AMPRS).  
AD-A018 716

Monitoring of the Fort Knox Industrialized BQ Project--Design and Construction Phases.  
AD-A019 929

Technological Forecast: Changes in Availability and Cost of Construction Materials for Military Construction.  
AD-A020 951

Changes in the Cost and Availability of Construction Labor.  
AD-A021 388

Construction Cost Engineering and Computation State of the Art, 1973.  
AD-A022 656

Access to the Military Construction Data System (MCDS): A User's Manual.  
AD-A024 141

Environmental Impact Computer System Attribute Descriptor Package. Reference Document.  
AD-A024 303

Development of the Military Construction Data System (MCDS). Part II.  
AD-A024 938

Proceedings of the CIB W-65 Symposium on Organization and Management of Construction, 19-20 May 76, U.S. National Academy of Sciences, Washington, D. C.  
AD-A025 317

Construction Scheduling of AFCS Facilities Methodology Report.  
AD-A027 584

Preparation and Review of DD Form 1391.  
AD-A027 585

Construction Scheduling of AFCS

SUBJECT INDEX-10  
UNCLASSIFIED 099062

CON-CON

# UNCLASSIFIED

Facilities--Skill Report.  
AD-A028 380  
Cost Effectiveness of  
Alternative Noise Reduction Methods  
for Construction of Family Housing.  
AD-A028 922  
Procuring Today's Building  
Technology: Volume I. A Summary.  
AD-A031 000  
Preliminary Design and  
Construction Guidelines for  
Vertical Construction in Desert and  
Tropical Theaters of Operations.  
AD-A032 124  
A Preliminary Concept for a  
Design Criteria Management System.  
AD-A032 125  
Information Flow for Military  
Construction.  
AD-A033 363  
Directory of Experts on  
Organization and Management of  
Construction (1977), CIB W-65  
Commission.  
AD-A033 530  
Engineering and Design  
Performance Analysis.  
AD-A035 208  
Military Construction  
Engineering and Design Cost  
Forecasts.  
AD-A035 262  
Military Construction  
Supervision and Administration Cost  
Forecasts.  
AD-A040 742  
Effective Use of Systems  
Building Technology: Open Systems  
Catalog. Volume I. Open Systems  
Guide.  
AD-A040 756  
Effective Use of Systems  
Building Technology: Open Systems  
Catalog. Volume II. Prototype  
Performance Specifications.  
AD-A040 757  
Effective Use of Systems  
Building Technology: Open Systems  
Catalog. Volume III. Building  
Products Information.  
AD-A040 758

Construction Specification  
Preparation within the EDITSPEC  
System.  
AD-A045 183  
Proceedings of the CIB W-65  
Symposium on Organization and  
Management of Construction, 19-20  
May 76, U.S. National Academy of  
Sciences, Washington, D.C. Volume  
II. Opening Addresses, Rapporteur  
Reviews, and Discourses.  
AD-A045 708  
Proceedings of the CIB W-65  
Working Commission on Organization  
and Management of Construction.  
Volume III. International Council  
for Building Research and  
Documentation and Dissemination.  
AD-A051 438  
Rapid Construction for Hardening  
Above-Ground Facilities to Small  
Arms Fire.  
AD-A054 306  
Development of a Prototype  
Habitability Data Base.  
AD-A058 824  
Engineering and Design Cost/Rate  
Forecasting System. Volume II.  
User's Manual.  
AD-A061 108  
Engineering and Design Cost/Rate  
Forecasting System. Volume I.  
Model Development and Data  
Analysis.  
AD-A061 127  
A Prototype Procedure for  
Facility Design Reviews.  
AD-A065 457  
Computer-Aided Engineering and  
Architectural Design System  
(CAEADS). Volume I. Summary.  
AD-A065 827  
Construction Contract Type  
Selection Procedures.  
AD-A066 384  
Blocks to Effective Technology  
Transfer in Construction.  
AD-A069 586  
1978 Directory of Experts on  
Organization and Management of  
Construction.

AD-A069 841  
Evaluation of Alternative  
Reroofing Systems.  
AD-A071 578  
Construction Contract Risk  
Assignment.  
AD-A071 623  
Directory of Construction  
Engineering Programs in  
Organization and Management of  
Construction.  
AD-A084 188  
CLAY  
Lime-Cement Combination  
Stabilization.  
AD- 762 552  
INDUSTRIAL EQUIPMENT  
Inspection of Pile Driving  
Operations.  
AD- 749 458  
SCHEDULING  
A Data-Based Methodology for  
Specifying Construction Project  
Durations.  
AD- 767 529  
CMP Instructions,  
Specifications, and Example.  
AD- 768 098  
TIME STUDIES  
Construction Time Overruns.  
AD- 766 725  
\*CONSTRUCTION EQUIPMENT  
Guidance for Selection of  
Equipment Fleet.  
AD- 770 927  
Construction Equipment Cost  
Guide.  
AD-A016 788  
Construction-Site Noise Control  
Cost-Benefit Estimation Technical  
Background.  
AD-A050 813  
Construction-Site Noise Control  
Cost-Benefit Estimating Procedures.  
AD-A051 737  
Recommendations for Concrete

UNCLASSIFIED 099062  
SUBJECT INDEX-11

CON-CON

# UNCLASSIFIED

Forming Kit for Theater of Operations Applications.  
AD-A058 832  
Construction Equipment Cost Guide. Volume 1.  
AD-A064 924  
Construction Equipment Cost Guide. Volume 2.  
AD-A064 925

\*CONSTRUCTION MATERIALS  
Nondestructive Testing of Construction Materials and Operations.  
AD- 774 847  
Wood Design Parameters for Theater of Operations Applications.  
AD- 780 800  
The Use of Coral as an Aggregate for Portland Cement Concrete Structures.  
AD- 784 092

The Impact of Materials Shortages on Military Construction.  
AD-A003 833  
Problems, Repair Methods, Materials, and Equipment.  
AD-A009 667

An Analytical Model for Determining Energy Dissipation in Dynamically Loaded Structures.  
AD-A017 040

Fire/Flammability Test of Polyurethane Foams and Protective Coatings.  
AD-A028 386

Effective Use of Systems Building Technology: Open Systems Catalog. Volume I. Open Systems Guide.  
AD-A040 756

Effective Use of Systems Building Technology: Open Systems Catalog. Volume II. Prototype Performance Specifications.  
AD-A040 757

Effective Use of Systems Building Technology: Open Systems Catalog. Volume III. Building Products Information.  
AD-A040 758

Corrosion Costs of Air Force and Army Facilities and Construction of a Cost Prediction Model.  
AD-A042 628

Civil Works Construction Cost Index System (CWCCIS).  
AD-A048 102

Trends in the Real Prices of Selected Construction Products and Materials, 1946-1976.  
AD-A053 228

Construction with Field Moldable Polyurethane Foam Blocks.  
AD-A054 440

Damaged Building Repair with Polyurethane Foam.  
AD-A057 435

Investigation of Rapidly Deployable Plastic Foam Systems. Volume I. System Development.  
AD-A076 332

MODULUS OF ELASTICITY  
The effects of Stress History on the Resilient Response of Soils.  
AD- 762 194

THERMAL INSULATION  
A Feasibility Study on the Use of Foam-in-Place Urethane Insulation in Masonry Cavity Walls.  
AD- 728 169

\*CONSUMERS  
Comparison of Consumer Satisfaction Before and After Dining Facility Renovations at Travis AFB, California.  
AD- 784 056

\*CONSUMPTION  
An Analysis of Electrical Consumption at Representative Army Installations.  
AD-A085 298

\*CONTAINERS  
Improved Collection and Container-Washing Systems for Solid Waste Management at Army Installations.

AD-A054 935

STRUCTURAL PROPERTIES  
Stiffness Matrix Reduction for Large Structural Systems Using Cholesky Decomposition.  
AD- 768 721

\*CONTRACT ADMINISTRATION  
Environmental Protection Guidelines for the Resident Engineer.  
AD-A012 109

Military Construction Contract Management. Recommendations for Improved Military Construction Contract Management Procedures.  
AD-A033 476

Modifications Processing Procedures: A Generalized Stochastic Network Model.  
AD-A043 717

Preliminary Investigations of Risk Sharing in Construction Contracts.  
AD-A054 299

Typical Contract Specifications for Collection of Refuse and Sanitary-Landfill Operations.  
AD-A061 638

Profit Primer: An Evaluation of Alternate Profit Determination Models.  
AD-A066 112

Construction Contract Type Selection Procedures.  
AD-A066 384

Construction Contract Risk Assignment.  
AD-A071 623

\*CONTRACTS  
Environmental Protection Guidelines for Construction Contract Specification Writers.  
AD-A014 146

Procuring Today's Building Technology. Volume II.  
AD-A030 520

MILITARY FACILITIES

SUBJECT INDEX-12  
UNCLASSIFIED 099062

CON-CON

# UNCLASSIFIED

Construction Time Overruns. AD-766 725	First Quarter FY 76 Results. AD-A023 750	AD-A030 518	AD-A030 518
*COOLING Interim Feasibility Assessment Method for Solar Heating and Cooling of Army Buildings. AD-A026 588	Consolidation of RPMA at Fayetteville, NC. Volume II. Summary Cost Analysis for Consolidation of RPMA in the Fayetteville, NC Area. AD-A030 518	Consolidation of RPMA at Fayetteville, NC. Volume III. Cost Analysis Support and Backup Data for the Consolidation of RPMA in the Fayetteville, NC Area. AD-A030 519	Consolidation of RPMA at Fayetteville, NC. Volume III. Cost Analysis Support and Backup Data for the Consolidation of RPMA in the Fayetteville, NC Area. AD-A030 519
Design of Solar Heating and Cooling Systems. AD-A062 719	Consolidation of RPMA at Fayetteville, NC. Volume I. Executive Summary for the Study of Consolidation of RPMA in the Fayetteville, N. C. Area. AD-A033 754	Consolidation of RPMA at Fayetteville, NC. Volume I. Executive Summary for the Study of Consolidation of RPMA in the Fayetteville, N. C. Area. AD-A033 754	Consolidation of RPMA at Fayetteville, NC. Volume I. Executive Summary for the Study of Consolidation of RPMA in the Fayetteville, N. C. Area. AD-A033 754
*COOLING TOWERS Selection of Cooling Water Treatment at Military Installations to Prevent Scaling and Corrosion. AD-A087 266	Consolidation of RPMA at Fayetteville, NC. Volume I. Executive Summary for the Study of Consolidation of RPMA in the Fayetteville, N. C. Area. AD-A033 754	Consolidation of RPMA at Fayetteville, NC. Volume I. Executive Summary for the Study of Consolidation of RPMA in the Fayetteville, N. C. Area. AD-A033 754	Consolidation of RPMA at Fayetteville, NC. Volume I. Executive Summary for the Study of Consolidation of RPMA in the Fayetteville, N. C. Area. AD-A033 754
*CORAL The Use of Coral as an Aggregate for Portland Cement Concrete Structures. AD-784 092	Consolidation of RPMA at Fayetteville, NC. Volume I. Executive Summary for the Study of Consolidation of RPMA in the Fayetteville, N. C. Area. AD-A033 754	Consolidation of RPMA at Fayetteville, NC. Volume I. Executive Summary for the Study of Consolidation of RPMA in the Fayetteville, N. C. Area. AD-A033 754	Consolidation of RPMA at Fayetteville, NC. Volume I. Executive Summary for the Study of Consolidation of RPMA in the Fayetteville, N. C. Area. AD-A033 754
*CORROSION Corrosion Costs of Air Force and Army Facilities and Construction of a Cost Prediction Model. AD-A042 628	Consolidation of RPMA at Fayetteville, NC. Volume IV. General Procedures for Conducting RPMA Consolidation Studies. AD-A041 331	Consolidation of RPMA at Fayetteville, NC. Volume IV. General Procedures for Conducting RPMA Consolidation Studies. AD-A041 331	Consolidation of RPMA at Fayetteville, NC. Volume IV. General Procedures for Conducting RPMA Consolidation Studies. AD-A041 331
*CORROSION INHIBITION Maintenance Painting of Steel Structures. AD-A030 397	Consolidation of RPMA at Fayetteville, NC. Volume IV. General Procedures for Conducting RPMA Consolidation Studies. AD-A041 331	Consolidation of RPMA at Fayetteville, NC. Volume IV. General Procedures for Conducting RPMA Consolidation Studies. AD-A041 331	Consolidation of RPMA at Fayetteville, NC. Volume IV. General Procedures for Conducting RPMA Consolidation Studies. AD-A041 331
Chloride Sensitivity of the Corrosion Rate of Zinc-Coated Reinforcing Bars. AD-A030 565	Consolidation of RPMA at Fayetteville, NC. Volume IV. General Procedures for Conducting RPMA Consolidation Studies. AD-A041 331	Consolidation of RPMA at Fayetteville, NC. Volume IV. General Procedures for Conducting RPMA Consolidation Studies. AD-A041 331	Consolidation of RPMA at Fayetteville, NC. Volume IV. General Procedures for Conducting RPMA Consolidation Studies. AD-A041 331
Corrosion Control in Civil Works: Cathodic Protection. AD-A045 184	Consolidation of RPMA at Fayetteville, NC. Volume IV. General Procedures for Conducting RPMA Consolidation Studies. AD-A041 331	Consolidation of RPMA at Fayetteville, NC. Volume IV. General Procedures for Conducting RPMA Consolidation Studies. AD-A041 331	Consolidation of RPMA at Fayetteville, NC. Volume IV. General Procedures for Conducting RPMA Consolidation Studies. AD-A041 331
*COST ANALYSIS Computer-Based Specifications: Cost Analysis Study. AD-786 551	Consolidation of RPMA at Fayetteville, NC. Volume IV. General Procedures for Conducting RPMA Consolidation Studies. AD-A041 331	Consolidation of RPMA at Fayetteville, NC. Volume IV. General Procedures for Conducting RPMA Consolidation Studies. AD-A041 331	Consolidation of RPMA at Fayetteville, NC. Volume IV. General Procedures for Conducting RPMA Consolidation Studies. AD-A041 331
Construction Equipment Cost Guide. AD-A016 788	Consolidation of RPMA at Fayetteville, NC. Volume IV. General Procedures for Conducting RPMA Consolidation Studies. AD-A041 331	Consolidation of RPMA at Fayetteville, NC. Volume IV. General Procedures for Conducting RPMA Consolidation Studies. AD-A041 331	Consolidation of RPMA at Fayetteville, NC. Volume IV. General Procedures for Conducting RPMA Consolidation Studies. AD-A041 331
Industrialized Building Construction Time/Cost Mode) -	Consolidation of RPMA at Fayetteville, NC. Volume IV. General Procedures for Conducting RPMA Consolidation Studies. AD-A041 331	Consolidation of RPMA at Fayetteville, NC. Volume IV. General Procedures for Conducting RPMA Consolidation Studies. AD-A041 331	Consolidation of RPMA at Fayetteville, NC. Volume IV. General Procedures for Conducting RPMA Consolidation Studies. AD-A041 331

SUBJECT INDEX-13  
UNCLASSIFIED 099062

C00-C03

# UNCLASSIFIED

Guide, Volume 2.  
AD-A064 925

HOUSING(DWELLINGS)  
Initial Quality and Life-Cycle  
Costs in Military Family Housing.  
AD- 764 452

•CRACKS  
PAVEMENTS  
Study of Reflection Cracking in  
Asphaltic Concrete Overlay  
Pavements, Phase I.  
AD- 894 275L

•CRANES  
Evaluation of Load-Indicating  
Devices (LIDS) for Mobile  
Construction Cranes.  
AD-A032 569

•CRITICAL ASSEMBLIES  
Fragility Data Analysis and  
Testing Guidelines for Essential  
Equipment Used in Critical  
Facilities.  
AD-A038 768

•DAMS  
Failure Analysis of Tainter Gate  
Cable-Adjusting Bolts.  
AD-A008 996  
Disposal of Cleaning Debris.  
AD-A036 675  
Probabilistic Concept for  
Gravity Dam Analysis.  
AD-A073 802

•DATA ACQUISITION  
Environmental Information  
Acquisition and Maintenance  
Techniques: Reference Guide.  
AD-A089 136

•DATA BASES  
Information Storage and  
Retrieval System for Life  
Expectancy of Facilities.  
AD- 782 912  
Facility Simulation Model for  
Advanced BMD Systems. Volume VII:

Data Base.  
AD-A015 973

Development of an Objective  
Definition of Habitability and a  
Habitability Data Base.  
AD-A041 188

Automated Pavement Maintenance  
and Repair Management System.  
AD-A042 582

Development of a Prototype  
Habitability Data Base.  
AD-A058 824

Preliminary Analysis of Computer-  
Aided Environmental Baseline  
Information System (CEBIS). Phase  
I. System Requirements.  
AD-B046 908L

•DATA LINKS  
Potential Uses of Fiber Optics  
in Army Fixed Facilities.  
AD-A057 956

•DATA MANAGEMENT  
Environmental Impact Computer  
System.  
AD- 787 295

ADP Manual for the Automated  
Military Construction Progress  
Reporting System (AMPRS).  
AD-A018 437

Reference Manual for the  
Automated Military Progress  
Reporting System (AMPRS).  
AD-A018 438

Conversion Instructions for the  
Automated Military Construction  
Progress Reporting System (AMPRS).  
AD-A018 439

Procedures for Collection of  
Reliability, Availability, and  
Maintainability Data on Electrical  
and Mechanical Systems.  
AD-A064 657

•DATA PROCESSING  
Computer-Based Specifications:  
Cost Analysis Study.  
AD- 786 551

Analysis of Real Estate Status  
Reporting Procedures.

AD-A062 720

•DATA TRANSMISSION SYSTEMS  
State of the Art in Fiber Optics  
Communications and Data Transfer.  
AD-A042 579

Potential Uses of Fiber Optics  
in Army Fixed Facilities.  
AD-A057 956

Recommended Interface Standards  
for an Army Standard Energy  
Monitoring and Control System.  
AD-A063 936

•DDT  
Migration of Explosives and  
Chlorinated Pesticides in a  
Simulated Sanitary Landfill.  
AD-A030 453

•DEBRIS  
Disposal of Cleaning Debris.  
AD-A024 751

•DESERTS  
Material, Design, and  
Construction Guidelines for  
Vertical Construction in Desert and  
Tropical Regions.  
AD-A057 957

•DINING HALLS  
Comparison of Consumer  
Satisfaction Before and After  
Dining Facility Renovations at  
Travis AFB, California.  
AD- 784 056

Comparative Study of Consumer  
Attitudes at Three Air Force Dining  
Facilities.  
AD-A000 711

Noise in Dishwashing Rooms.  
AD-A028 921

Fort Lee Enlisted Personnel  
Dining Facility Modernization  
Evaluation Program.  
AD-A042 580

Use of 'Ideal' Ratings as a  
Standard for Evaluating Facilities.  
AD-A058 570  
Decor Guide for Enlisted

SUBJECT INDEX-14  
UNCLASSIFIED 099062

CRA-DIN

# UNCLASSIFIED

- Personnel Dining Facilities.  
AD-A074 902
- DIRECTORIES  
Directory of Experts on  
Organization and Management of  
Construction (1977). (IB W-65  
Commission.  
AD-A033 530
- DISPOSAL  
Disposal of Cleaning Debris.  
AD-A024 751
- DISTRIBUTION THEORY  
Development of Heuristic  
Procedures to Analyze the  
Production-Transportation Problem.  
AD-A016 984
- DOMES(STRUCTURAL FORMS)  
Inflation Forming of Steel Fiber-  
Reinforced Concrete Domes.  
AD-A005 046  
Ballistics Tests of Fibrous  
Concrete Dome and Plate Specimens.  
AD-A025 209  
Dome Shelter Construction with  
Polyurethane Foam.  
AD-A044 992
- DRAINAGE  
Methodology and Effectiveness of  
Drainage Systems for Airfield  
Pavements.  
AD-A003 237
- DRILLING MACHINES  
Evaluation of Lunar Drilling  
Technology for Terrestrial  
Applications -- Field Study.  
AD-781 944  
Evaluation of Lunar Drilling  
Technology for Terrestrial  
Applications.  
AD-782 914  
Evaluation of Lunar Drilling  
Technology for Terrestrial  
Applications. Diamond Drill Bit  
Evaluation.  
AD-A013 387
- DRILLS  
Evaluation of Lunar Drilling  
Technology for Terrestrial  
Applications. Diamond Drill Bit  
Evaluation.  
AD-A013 387
- DUST  
Fugitive Dust Emissions from  
Construction Haul Roads.  
AD-A037 048
- DYNAMIC LOADS  
A New Look at Structural Energy  
Dissipation.  
AD-780 801
- DYNAMIC RESPONSE  
Dynamic Response of Reinforced  
Concrete Structures.  
AD-A056 627
- EARTH FILLS  
Sanitary Landfill.  
AD-773 714  
Sanitary Landfill Compactor  
Evaluation.  
AD-A067 697  
Simplified Sanitary Landfill  
Design.  
AD-A073 894
- EARTH HANDLING EQUIPMENT  
Sanitary Landfill Compactor  
Evaluation.  
AD-A067 697  
Earthmoving, Lifting, and  
Pulling Requirements for the Combat  
Engineer Vehicle (CEV).  
AD-B042 190L
- EARTHQUAKE ENGINEERING  
Dynamic Response of Reinforced  
Concrete Structures.  
AD-A056 627  
Equivalent Viscous Damping of  
Elasto-Plastic Systems under  
Sinusoidal Loading.  
AD-A057 225  
Shock Resistance of Air-  
Conditioning Units Test Report for
- Ellis and Watts Company,  
Cincinnati, Ohio.  
AD-A075 607
- EARTHQUAKE RESISTANT STRUCTURES  
Guidelines for Developing Design  
Earthquake Response Spectra.  
AD-A012 728  
Modal Analysis Methods in  
Seismic Design for Buildings.  
AD-A012 732  
Three-Dimensional Seismic  
Structural Analysis of Letterman  
Hospital.  
AD-A022 085  
Seismic Design Methods for  
Military Facilities -- Preliminary  
Recommendations.  
AD-A027 384  
Seismic Structural  
Design/Analysis Guidelines for  
Buildings.  
AD-A037 747  
A Seismic Risk Simulation Model  
for Army Facilities: Phase One,  
Development of Deterministic Model.  
AD-A043 173  
Current and Tentative Seismic  
Design Provisions for Buildings:  
Preliminary Comparisons.  
AD-A075 204
- ECOLOG  
Guidelines for Terrestrial  
Ecosystem Survey.  
AD-A086 526  
Ecological Baseline, Fort Hood,  
Texas.  
AD-A088 271
- ECONOMETRICS  
Profit Primer: An Evaluation of  
Alternate Profit Determination  
Models.  
AD-A066 112
- ECONOMIC ANALYSIS  
Market Evaluation Study: Solar  
Heating and Domestic Hot Water  
Heating in DOD Buildings.  
AD-A042 178

SUBJECT INDEX-15  
UNCLASSIFIED 099062

DIR-ECO



# UNCLASSIFIED

Development of the Economic Impact Forecast System (EIFS)--the Multiplier Aspects.  
AD-A057 936  
Economic Impact Forecast System, Version 2.0: User's Manual.  
AD-A073 667

\*ECONOMIC MODELS  
Development of the Economic Impact Forecast System (EIFS)--the Multiplier Aspects.  
AD-A057 936  
Local Economic Consequences Study (LECS) Preliminary User Manual.  
AD-A088 261

\*ECONOMICS  
Tract Level Socioeconomic Data System (TRACT) User Manual.  
AD-A059 825  
Analysis of Real Estate Status Reporting Procedures.  
AD-A062 720

\*ECOSYSTEMS  
Guidelines for Terrestrial Ecosystem Survey.  
AD-A086 526

\*EDUCATION  
Directory of Construction Engineering Programs in Organization and Management of Construction.  
AD-A084 188

\*EFFLUENTS  
Identification and Quantification of Hydrocarbon Products in Effluents.  
AD-A088 268

\*ELASTIC PROPERTIES  
A Plasticity Formulation for Cyclic Inelastic Structural Analysis.  
AD-A036 473

\*ELECTRIC GENERATORS

Stationary Gas Turbine-Generator Set Acceptance Testing Procedures, Methods, and Instructions.  
AD-A043 170  
Evaluation of Instrumentation for Testing Large Generator Sets.  
AD-A050 169

\*ELECTRIC POWER  
An Analysis of Electrical Consumption at Representative Army Installations.  
AD-A085 298

\*ELECTRIC POWER DISTRIBUTION  
Investigation of Ground Fault Circuit Interrupter.  
AD-A031 781

\*ELECTRIC POWER PLANTS  
Evaluation of Instrumentation for Testing Large Generator Sets.  
AD-A050 169  
Densified Biomass as an Alternative Army Heating and Power Plant Fuel.  
AD-A083 317

\*ELECTRIC POWER PRODUCTION  
Stationary Diesel Engine-Generator Set Acceptance Testing Procedures, Methods, and Instructions.  
AD-A037 545

MILITARY REQUIREMENTS  
Advanced Electrical Power Generation and Distribution Concepts for Military Facilities.  
AD- 765 476

\*ELECTRICAL CONDUCTIVITY  
Analysis of a Nonlinear Electromagnetic Field Penetration Problem.  
AD-A056 424

\*ELECTRICAL RESISTIVITY  
Compatibility Study of Conductive Flooring.  
AD-A029 410

\*ELECTROMAGNETIC FIELDS  
Analysis of a Nonlinear Electromagnetic Field Penetration Problem.  
AD-A056 424

\*ELECTROMAGNETIC INTERFERENCE  
Investigation of RF Coupling and Radiation Leakage Parameters of Some Typical Junction Box Circuitry Configurations.  
AD-A023 596

Selection of Recommended Electromagnetic Interference/Radio Frequency Interference Shielding Effectiveness Test Procedures for Military Tactical Shelters.  
AD-B046 844L

\*ELECTROMAGNETIC PULSES  
EMP Shielding Properties of Conduit Systems and Related Hardware.  
AD-A012 729

\*ELECTROMAGNETIC SHIELDING  
The Effect of Weld Defects on RFI Shielding Effectiveness.  
AD- 773 716  
Electromagnetic Shielding of Structures.  
AD- 776 367

EMP Evaluation of Junction Boxes, Junction-Box Covers, and Gaskets.  
AD-A010 631

Development and Evaluation of Repairs for EMP Leaks in Conduit Systems.  
AD-A011 223

Results of RFI Testing of Safeguard Flexible Tunnel Section.  
AD-A011 225

EMP Shielding Properties of Conduit Systems and Related Hardware.  
AD-A012 729

RFI Shielding Effectiveness of Steel Sheets with Partly Welded Seams.  
AD-A019 931

SUBJECT INDEX-16  
UNCLASSIFIED 099062

ECO-ELE

# UNCLASSIFIED

- RFI Shielding Effectiveness of Steel Sheets with Partly Welded Seams.  
AD-A026 043
- Radio Frequency Shielding Tests of System Technology Test Facility at Meck Island, Marshall Islands.  
AD-A041 450
- Development of Conduit Design Analytical Procedure.  
AD-A056 218
- Selection of Recommended Electromagnetic Interference/Radio Frequency Interference Shielding Effectiveness Test Procedures for Military Tactical Shelters.  
AD-B046 844L
- \*ELECTRON MICROSCOPY  
A Scanning Electron Microscope Investigation of Statically Loaded Foundation Materials.  
AD-A013 403
- \*ELECTROSTATIC CHARGE  
Compatibility Study of Conductive Flooring.  
AD-A029 410
- \*EMISSION CONTROL  
Air Pollution Survey Guidelines for Army Installations.  
AD-A029 633
- \*EMPLOYEE RELATIONS  
OFFICE BUILDINGS  
Cost Effectiveness of Three Different Interior Open-Type Offices.  
AD- 758 151
- \*ENERGY  
Army Corps of Engineers, Box 4005, Champaign, Illinois 61820.  
Telephone: AC 217-352-6511, Fts 958-7011  
AD- 990 800
- Energy Recovery from Solid Waste in the Charleston, SC, SMSA.  
AD-A056 196

- \*ENERGY CONSERVATION  
A Study of the Technical Feasibility of Developing a Standardized Energy Control System Specifically for Army Facilities.  
AD-A044 455
- \*ENERGY CONSUMPTION  
A Study of the Technical Feasibility of Developing a Standardized Energy Control System Specifically for Army Facilities.  
AD-A044 455
- Fixed Facilities Energy Consumption Investigation Initial Energy Data.  
AD-A051 074
- Fixed Facilities Energy Consumption Investigation Data Users Manual.  
AD-A052 708
- The Building Loads Analysis and System Thermodynamics Program (BLAST). Release Number 1.  
AD-A056 226
- Fixed Facilities Energy Consumption Investigation -- Data Analysis.  
AD-A066 513
- Comparison of Building Loads Analysis and System Thermodynamics (BLAST) Computer Program Simulations and Measured Energy Use for Army Buildings.  
AD-A085 573
- Parametric Analysis of Energy Consumption in Army Buildings by the Building Loads Analysis and System Thermodynamics (BLAST) computer Program.  
AD-A089 406
- \*ENERGY CONVERSION  
Technology Evaluation of Army-Scale Waste-to-Energy Systems.  
AD-A042 578
- Recovery of Energy from Solid Waste at Army Installations.  
AD-A044 814
- Energy Recovery from Solid Waste in the Charleston, SC, SMSA.

- AD-A056 196
- Technical Evaluation Study: Energy Recovery from Solid Waste at Fort Dix, NJ and Nearby Civilian Communities.  
AD-A062 653
- Project Development Guidelines for Converting Army Installations to Coal Use.  
AD-A068 025
- \*ENERGY MANAGEMENT  
Total Energy and Total Utility Systems for Conservation of Resources.  
AD-A023 244
- Use of the Building Loads Analysis and System Thermodynamics Program to Perform Total Energy System Analysis.  
AD-A040 744
- A Study of the Technical Feasibility of Developing a Standardized Energy Control System Specifically for Army Facilities.  
AD-A044 455
- Analysis of Central Total Energy Systems at Military Facilities.  
AD-A044 813
- Recovery of Energy from Solid Waste at Army Installations.  
AD-A044 814
- The Building Loads Analysis and System Thermo-Dynamics (BLAST) Program. Volume II. Reference Manual.  
AD-A048 982
- Field Test of Building Energy Analysis Tools and Procedures.  
AD-A055 095
- \*ENGINEERING GEOLOGY  
A Systematic Determination of Engineering Criteria for Rock.  
AD- 777 768
- \*ENVIRONMENT  
ATTITUDES (PSYCHOLOGY)  
Cost Effectiveness of Three Different Interior Open-Type Offices.

SUBJECT INDEX-17  
UNCLASSIFIED 099062

ELE-ENV

# UNCLASSIFIED

AD- 758 151

\*ENVIRONMENTAL ENGINEERING  
Environmental Impact Computer  
System.

AD- 787 295

Army Corps of Engineers, Box  
4005, Champaign, Illinois 61820.  
Telephone: AC 217-352-6511, Fts 958-  
7011

AD- 990 800

Experimental Verification of  
Ventilation Analysis Procedure.

AD-A010 630

Procedures for Reviewing  
Environmental Impact Assessments  
and Statements for Construction  
Projects.

AD-A015 020

Computer-Aided Environmental  
Legislative Data System (CELOS).  
User Manual.

AD-A061 126

System Documentation for  
Computer-Aided Environmental  
Legislative Data System.

AD-A061 158

Modification and Extension of  
the Environmental Technical  
Information System (ETIS) for the  
Air Force.

AD-A079 441

\*ENVIRONMENTAL IMPACT STATEMENTS

Environmental Impact Computer  
System Attribute Descriptor  
Package. Reference Document.

AD-A024 303

The Economic Impact Forecast  
System: Description and User  
Instructions.

AD-A027 139

Computer-Aided Environmental  
Impact Analysis for Air Force Base  
Realignment Activities: User  
Manual.

AD-A027 431

Computer-Aided Environmental  
Impact Analysis for Air Force  
Research, Development, Test and  
Evaluation Activities: User

Manual.

AD-A039 132

Environmental Noise Impact  
Analysis for Army Military  
Activities: User Manual.

AD-A047 969

The Rational Threshold Value  
(RTV) Technique for the Evaluation  
of Regional Economic Impacts.

AD-A055 561

Field Use of the Environmental  
Impact Computer System.

AD-A056 406

Computer-Aided Environmental  
Impact Analysis for Industrial,  
Procurement, and Research,  
Development, Test, and Evaluation  
Activities: User Manual.

AD-A056 997

Tract Level Socioeconomic Data  
System (TRACT) User Manual.

AD-A058 825

Clearinghouse Information  
System: Description and User  
Instructions.

AD-A059 176

The Baseline Information System--  
User's Manual.

AD-A069 324

Aquatic Rational Threshold Value  
(RTV) Concepts for Army  
Environmental Impact Assessment.

AD-A073 032

Effects of Tracked Vehicle  
Activity on Terrestrial  
Mammals, Birds, and Vegetation at  
Fort Knox, KY.

AD-A073 782

Interactive Environmental Impact  
Computer System (EICS) User Manual.

AD-A074 890

Modification and Extension of  
the Environmental Technical  
Information System (ETIS) for the  
Air Force.

AD-A079 441

Guidelines for Review of EA/EIS  
Documents.

AD-A089 976

\*ENVIRONMENTAL MANAGEMENT

SUBJECT INDEX-18

UNCLASSIFIED 099062

Clearinghouse Information  
System: Description and User  
Instructions.

AD-A059 176

Developing Habitability  
Information for the Design of  
Office Environments.

AD-A074 467

Interagency/Intergovernmental  
Coordination for Environmental  
Planning (IICEP): Systems  
Considerations.

AD-A085 991

\*ENVIRONMENTAL PROTECTION

Handbook for Environmental  
Impact Analysis.

AD-A006 241

Computer-Aided Environmental  
Impact Analysis for Construction  
Activities: User Manual.

AD-A008 988

Environmental Protection  
Guidelines for Construction  
Contract Specification Writers.

AD-A014 146

Procedures for Reviewing  
Environmental Impact Assessments  
and Statements for Construction  
Projects.

AD-A015 020

Computer-Aided Environmental  
Impact Analysis for Mission Change,  
Operations and Maintenance, and  
Training Activities: User Manual.

AD-A022 698

Environmental Impact Computer  
System Attribute Descriptor  
Package. Reference Document.

AD-A024 303

Computer-Aided Environmental  
Impact Analysis for Army Real  
Estate Actions: User Manual.

AD-A068 746

Basic Analytical Model for  
Environmental Impact Assessment of  
Surface Water Resources--DUSAG User  
Manual.

AD-A069 977

Concept Definition for the  
Problems Data Base Component of the

ENV-ENV

# UNCLASSIFIED

Water Pollution Abatement Subsystem  
of the Pollution Abatement  
Management System (PAMS).  
AD-A072 397

\*ENVIRONMENTAL TESTS  
Effects of Tracked Vehicle's  
Activity on Terrestrial  
Mammals, Birds, and Vegetation at  
Fort Knox, KY.  
AD-A073 782  
Shock Resistance of Air-  
Conditioning Units Test Report for  
Ellis and Watts Company,  
Cincinnati, Ohio.  
AD-A075 607

\*ENVIRONMENTS  
Environmental Impact Assessment  
Study for Army Military Programs.  
AD- 771 052  
Development of the Environmental  
Technical Information System.  
AD-A009 668  
A Review and Analysis of  
Environmental Impact Assessment  
Methodologies.  
AD-A013 359  
Environmental Information  
Acquisition and Maintenance  
Techniques: Reference Guide.  
AD-A089 136  
Preliminary Analysis of Computer-  
Aided Environmental Baseline  
Information System (CEBIS). Phase  
I. System Requirements.  
AD-8046 908L

\*EPOXY RESINS  
Review of Formulation and  
Testing Procedures for Coal Tar  
Epoxy (SSPC Paint 16-68T).  
AD-A030 566

AGING(MATERIALS)  
Epoxy Resin Cure Evaluation:  
Data Report.  
AD- 880 626

MATERIALS  
Laboratory and Field Study of  
Rubber Removal Compounds.  
AD- 890 034L

THERMAL EXPANSION  
Coefficient of Linear Thermal  
Expansion of Epoxy Resin Mortars.  
AD- 742 212

\*EXPANDABLE STRUCTURES  
Erection Procedures for  
Prefabricated Expandable Foam/Wood  
Structures.  
AD-A027 382

\*EXPANDED PLASTICS  
Fire/Flammability Test of  
Polyurethane Foams and Protective  
Coatings.  
AD-A028 386

THERMAL INSULATION  
A Feasibility Study on the Use  
of Foam-in-Place Urethane  
Insulation in Masonry Cavity Walls.  
AD- 728 169

\*EXPLOSIVE ORDNANCE DISPOSAL  
Water Management Modifications  
for Acetic Anhydride Manufacture at  
Holston Army Ammunition Plant.  
AD-8031 260L

\*EXPLOSIVES  
Predicting Community Response to  
Blast Noise.  
AD- 773 690  
Effects of Temperature Cycling  
on Selected Conductive Flooring.  
AD-A029 409  
Compatibility Study of  
Conductive Flooring.  
AD-A029 410

\*EXTRUSION  
WATER PIPES  
Threaten of Operations water  
Supply--Feasibility of  
Manufacturing and Using Plastic  
Pipe in the Theater of Operations.  
AD- 769 600

\*FABRICS  
Evaluation of the Corrosion  
Resistance of Alternate Revetment  
Wire Fabric Materials in the Lower  
Mississippi River.  
AD-A043 558

\*FACILITIES  
Literature Research on Living,  
Working, and Training Facility  
Environments.  
AD-A059 058  
A Prototype Procedure for  
Facility Design Reviews.  
AD-A065 457

\*FAILURE  
Failure Analysis of Tainter Gate  
Cable-Adjusting Bolts.  
AD-A008 996

\*FAILURE(MECHANICS)  
Failure Analysis of Ozark,  
Arkansas, Power Plant Socket-Head  
Cap Screws.  
AD-A029 911

\*FALLOUT SHELTERS  
Experimental Verification of  
Ventilation Analysis Procedure.  
AD-A010 530

\*FATIGUE(MECHANICS)  
A Generalized Kinematic  
Hardening Theory.  
AD- 785 652

\*FAULTS  
Investigation of Ground Fault  
Circuit Interrupter.  
AD-A031 781

\*FIBER METALLURGY  
Directional Transformation in  
Steel--Texture Behavior and  
Martensite Morphology.  
AD- 771 906

\*FIBER OPTICS  
State of the Art in Fiber Optics  
Communications and Data Transfer.

SUBJECT INDEX-19  
UNCLASSIFIED 099062

ENV-F18

# UNCLASSIFIED

- AD-A042 579
- \*FIBER OPTICS TRANSMISSION LINES
  - Fiber Optic Communications Link Performance in EMP and Intense Light Transient Environments.
  - AD-A032 126
  - The Effects of Fast and Thermal Neutron Flux and Gamma Radiation on the Transmission Characteristics of Optical Fibers.
  - AD-A042 429
  - Potential Uses of Fiber Optics in Army Fixed Facilities.
  - AD-A057 956
- \*FIBER REINFORCED COMPOSITES
  - Rapid Construction for Hardening Above-Ground Facilities to Small Arms Fire.
  - AD-A054 306
- \*FIBER REINFORCEMENT
  - Corrosion Behavior of Steel Fibrous Concrete.
  - AD-A041 339
- \*FIBERS
  - REINFORCING MATERIALS
  - CRITICAL NORMAL FRACTURE STRAIN OF PLAIN AND STEEL WIRE FIBROUS-REINFORCED CONCRETE.
  - AD- 695 719
- \*FIRE FIGHTING
  - Structural Fire Protection/Prevention Consolidation Study for Fayetteville, NC Area.
  - AD-A018 217
- \*FIRE PREVENTION
  - Structural Fire Protection/Prevention Consolidation Study for Fayetteville, NC Area.
  - AD-A018 217
- \*FIRE PROTECTION
  - Structural Fire Protection/Prevention Consolidation Study for Fayetteville, NC Area.
  - AD-A018 217
- \*FIRE RESISTANT COATINGS
  - Fire/Flammability Test of Polyurethane Foams and Protective Coatings.
  - AD-A028 386
- \*FIRE SAFETY
  - Durability and Fire-Spread Aspects of Plastic Pipe Systems.
  - AD-A073 031
- \*FLIGHT PATHS
  - Technical Background: Interim Criteria for Planning Rotary-Wing Aircraft Traffic Patterns, and Siting Noise-Sensitive Land Uses.
  - AD-A031 449
  - User Manual: Interim Procedure for Planning Rotary-Wing Aircraft Traffic Patterns and Siting Noise-Sensitive Land Uses.
  - AD-A031 450
- \*FLOOR COVERINGS
  - Effects of Temperature Cycling on Selected Conductive Flooring.
  - AD-A029 409
  - Compatibility Study of Conductive Flooring.
  - AD-A029 410
- \*FLOORS
  - Development of a Design Manual for Concrete Floor Slabs on Grade.
  - AD- 773 715
  - Comparison of Selected Conductive Polyolefin and Lead Floorings.
  - AD-A033 757
- \*FLUID MECHANICS
  - Liquid-Spring Shock Isolator Modeling.
  - AD-A044 993
- \*FLY ASH
  - Use of Fly Ash and High-Strength Reinforcing Bars in Military Construction.
  - AD-A045 186
- \*FOAM
  - Field Experiment on a Prefabricated Expandable Foam/Wood Structure.
  - AD-A032 726
  - Inflation/Foam/Shotcrete System for Rapid Shelter Construction.
  - AD-A040 789
  - Prefabricated Expandable Foam/Wood Structures for Theater of Operations.
  - AD-A044 991
  - Dome Shelter Construction with Polyurethane Foam.
  - AD-A044 992
  - Feasibility of Structural Foam/Concrete Building for Theater of Operations Use.
  - AD-A053 272
  - Construction with Field Moldable Polyurethane Foam Blocks.
  - AD-A054 440
  - Damaged Building Repair with Polyurethane Foam.
  - AD-A057 435
  - Foam Overhead Cover Support (FOOS) System for Dismounted and Mounted TOW Positions.
  - AD-A075 746
  - Investigation of Rapidly Deployable Plastic Foam Systems. Volume II. Nonlinear Deformation and Local Buckling of Kevlar Fabric/Polyurethane Foam Composites.
  - AD-A076 310
  - Investigation of Rapidly Deployable Plastic Foam Systems. Volume I. System Development.
  - AD-A076 332
- \*FOOD DISPENSING
  - Comparative Study of Consumer Attitudes at Three Air Force Dining Facilities.
  - AD-A000 711
  - Decor Guide for Enlisted Personnel Dining Facilities.
  - AD-A003 828
- AIR FORCE

SUBJECT INDEX-20  
UNCLASSIFIED 099062

F18-F00

# UNCLASSIFIED

Dining Facility User-Attitudes and Environmental Design Research at Travis AFB, California.  
AD- 765 477

MILITARY FACILITIES  
DECOR Catalog for Dining Facilities.  
AD- 760 185

\*FOOD SERVICE  
Air Curtain Machines for Food Service Facilities.  
AD-A039 364

\*FORECASTING  
Significance Ranking of Changes in the Building Industry.  
AD-A003 991  
Technological Forecast: Changes in Availability and Cost of Construction Materials for Military Construction.  
AD-A020 951

Development of the Economic Impact Forecast System (EIFS)--the Multiplier Aspects.  
AD-A057 936

\*FORMS(PAPER)  
Preparation and Review of DD Form 1391.  
AD-A027 585

\*FORMULATIONS  
Preliminary Selection of Compatible Solvents for Vinyl Paints.  
AD-A067 708

\*FORWARD AREAS  
Wood Design Parameters for Theater of Operations Applications.  
AD- 780 800

\*FOUNDATIONS(STRUCTURES)  
Foundations for Family Housing.  
AD- 778 156  
Structures on Expansive Soils.  
AD- 779 510  
A Scanning Electron Microscope

Investigation of Statically Loaded Foundation Materials.  
AD-A013 403

HOWIZERS  
Soil Stabilization Investigation for 155 mm Towed Howitzer Firing Pads.  
AD- 766 299

QUALITY CONTROL  
Inspection of Pile Driving Operations.  
AD- 749 458

\*FRACTURE(MECHANICS)  
Multiple Connectivity and the J Integral of Fracture Mechanics.  
AD- 777 544  
An Evaluation of the Fracture of Plain Concrete, Fibrous Concrete, and Mortar Using the Scanning Electron Microscope.  
AD-A007 742

Initial Studies of In-Sem Fracture Using a Tensile Stage.  
AD-A025 203  
Failure Analysis of Ozark, Arkansas, Power Plant Socket-Head Cap Screws.  
AD-A029 911

Fracture Characteristics of Two High-Strength, Low-Alloy and Two Stainless Steels.  
AD-A035 629

Fracture Characteristics of ASTM A-607 Pipe-Line Steel, ASTM A-516 Structural Steel, and ASTM B-209, Aluminum Alloys 5083 and 6061.  
AD-A055 520

Fracture Characteristics of Structural Steels: Reference Manual.  
AD-A072 054

\*FRAGILITY  
Fragility Data Analysis and Testing Guidelines for Essential Equipment Used in Critical Facilities.  
AD-A038 768

\*FUELS  
Technical Evaluation Study: Solid Waste Heat Reclamation at Naval Air Test Center Patuxent, Md.  
AD-A015 613

Technical Evaluation of the Feasibility of Burning Eco-Fuel at Philadelphia Naval Shipyard.  
AD-A015 614

Technical Evaluation Study: Energy-Recovery Solid Waste Incineration to Naval Station Mayport, Florida.  
AD-A015 615

Technical Evaluation Study: Solid Waste Heat Reclamation at Philadelphia Naval Shipyard, Philadelphia, Pa.  
AD-A015 616

Technical Evaluation Study: Solid Waste as a Fuel at Ft. Bragg, N. C.  
AD-A034 416

Technology Evaluation of Army-Scale Waste-to-Energy Systems.  
AD-A042 578

Fuels: State of the Art in Industrial Utilization.  
AD-A063 239

Thermogravimetric Analysis of Solid Refuse-Derived Fuels and Coal.  
AD-A067 829

Production and Use of Densified Refuse-Derived Fuel (DRDF) in Military Central Heating and Power Plants.  
AD-A082 773

\*FUMES  
Fume Emissions from Coal-Tar Pitch.  
AD-A022 844

\*FUNCTIONAL ANALYSIS  
A Prototype Procedure for the Local Generation of Facility Requirements.  
AD-A043 172

\*GARBAGE

SUBJECT INDEX-21  
UNCLASSIFIED 099062

FOO-GAR

# UNCLASSIFIED

Technical Evaluation of the  
Feasibility of Burning Eco-Fuel at  
Philadelphia Naval Shipyard.  
AD-A015 614

\*GAS METAL ARC WELDING  
Application of Acoustic Emission  
to Weld Monitoring.  
AD-A003 992

Determination of Arc Voltage,  
Amperage, and Travel Speed Limits  
by Bead-on-Plate Welding.  
AD-A033 684

Determination of the Effect of  
Current and Travel Speed of Gas  
Metal-Arc Welding on the Mechanical  
Properties of A36, A516, and A514  
Steels.  
AD-A085 342

\*GAS TURBINES  
Stationary Gas Turbine-Generator  
Set Acceptance Testing Procedures,  
Methods, and Instructions.  
AD-A043 170

\*GEOGRAPHIC AREAS  
Consolidation of RPMA at  
Fayetteville, N. C. Volume I.  
Executive Summary for the Study of  
Consolidation of RPMA in the  
Fayetteville, N. C. Area.  
AD-A033 754

\*GROUND SUPPORT EQUIPMENT  
Foam Overhead Cover Support  
(FOCOS) System for Dismounted and  
Mounted TOW Positions.  
AD-A075 746

AIR TRANSPORTATION  
Air Cargo Support Facilities for  
Army Airlift Operations.  
AD- 762 551

\*GROUND(ELECTRICAL)  
Investigation of Ground Fault  
Circuit Interrupter.  
AD-A031 781

\*HABITABILITY

Conceptualization of  
Habitability Expressions for the  
Habitability Data Base.  
AD-A029 561

Conceptualization for the  
Generation of Habitability  
Requirements.  
AD-A030 091

Programming for Habitability:  
Symposium Proceedings,  
AD-A034 135

Concepts for the Generation,  
Communication, and Evaluation of  
Habitability Criteria.  
AD-A041 187

Development of an Objective  
Definition of Habitability and a  
Habitability Data Base.  
AD-A041 188

Establishing Habitability  
Factors for the Design of Office  
Environments,  
AD-A056 463

Development of a Prototype  
Habitability Data Base.  
AD-A058 824

Literature Research on Living,  
Working, and Training Facility  
Environments.  
AD-A059 058

The Role of Habitability  
Information in Post-occupancy  
Evaluation.  
AD-A068 024

Developing Habitability  
Information for the Design of  
Office Environments.  
AD-A074 467

Methods for Developing  
Habitability Design Criteria.  
AD-AC98 011

\*HANDBOOKS  
Handbook for Environmental  
Impact Analysis.  
AD-A006 241

\*HANDLING  
CARGO

A Stochastic Network to Model  
Air Cargo Terminals.

SUBJECT INDEX-22  
UNCLASSIFIED 099062

GAS-HAR

AD- 750 365

\*HARDENED STRUCTURES

Facility Simulation Model for  
Advanced BMD Systems. Volume I.  
Executive Summary.  
AD-A009 743

Facility Simulation Model for  
Advanced BMD Systems. Volume IIA.  
Executive Control Module: User's  
Manual.  
AD-A009 744

Facility Simulation Model for  
Advanced BMD Systems. Volume IIB.  
Executive Control Module: Program  
Reference Manual.  
AD-A009 745

Facility Simulation Model for  
Advanced BMD Systems. Volume IIC.  
Executive Control Module: Program  
Listing.  
AD-A009 746

Facility Simulation Model for  
Advanced BMD Systems. Volume IIIA.  
Structural Module: User's Manual.  
AD-A009 747

Facility Simulation Model for  
Advanced BMD Systems. Volume IVB.  
Power Module. Program Reference  
Manual.  
AD-A009 748

Facility Simulation Model for  
Advanced BMD Systems. Volume IIIC:  
Structural Module: Program  
Listing.  
AD-A010 713

Facility Simulation Model for  
Advanced BMD Systems. Volume VA:  
HVAC/PC Module: User's Manual.  
AD-A010 714

Facility Simulation Model for  
Advanced BMD Systems. Volume VB:  
HVAC/PC Module: Program Reference  
Manual.  
AD-A010 715

Facility Simulation Model for  
Advanced BMD Systems. Volume IIIB.  
Structural Module: Program  
Reference Manual.  
AD-A011 226

Facility Simulation Model for

# UNCLASSIFIED

- Advanced BMD Systems. Volume IVA.  
Power Module: User's Manual.  
AD-A011 227
- Facility Simulation Model for  
Advanced BMD Systems. Volume IVC.  
Power Module: Program Listing.  
AD-A011 231
- Facility Simulation Model for  
Advanced BMD Systems. Volume VC.  
HVAC/PC Module: Program Listing.  
AD-A011 232
- Facility Simulation Model for  
Advanced BMD Systems. Volume VIII.  
Operational Manual.  
AD-A011 235
- Facility Simulation Model for  
Advanced BMD Systems. Volume VII:  
Data Base.  
AD-A015 973
- The Feasibility of a Storable  
Propellant Turbine/High-Speed  
Alternator as a Compact Short-Life  
Power System for Hardened Ballistic  
Missile Defense (BMD)  
Installations.  
AD-A024 786
- \*HARDENING  
A Generalized Kinematic  
Hardening Theory.  
AD- 785 652
- Isotropic-Kinematic Hardening  
Model for Elastic-Plastic Cyclic  
Structural Analysis.  
AD-A014 945
- \*HEAT RECOVERY  
Application of the Package  
Controlled-Air, Heat-Recovery Solid  
Waste Incinerator on Army Fixed  
Facilities and Installations.  
AD-A071 539
- \*HEATING  
Densified Biomass as an  
Alternative Army Heating and Power  
Plant Fuel.  
AD-A083 317
- \*HEATING PLANTS  
Predicting the Performance of
- Solar Energy Systems.  
AD-A035 608
- \*HELICOPTERS  
Technical Background: Interim  
Criteria for Planning Rotary-Wing  
Aircraft Traffic Patterns, and  
Siting Noise-Sensitive Land Uses.  
AD-A031 449
- User Manual: Interim Procedure  
for Planning Rotary-Wing Aircraft  
Traffic Patterns and Siting Noise-  
Sensitive Land Uses.  
AD-A031 450
- Rotary-Wing Aircraft Operational  
Noise Data.  
AD-A051 999
- \*HELIPORTS  
LIGHTING EQUIPMENT  
DEVELOPMENT STUDY FOR A VFR  
HELIPORT STANDARD LIGHTING SYSTEM.  
AD- 710 982
- \*HIGH STRENGTH  
Determination of the Effect of  
Current and Travel Speed of Gas  
Metal-Arc Welding on the Mechanical  
Properties of A36, A516, and A514  
Steels.  
AD-A085 342
- \*HOSPITALS  
Automated Scheduling of  
Maintenance Events: Status of  
Fitzsimons Hospital Study.  
AD- 772 896
- Three-Dimensional Seismic  
Structural Analysis of Letterman  
Hospital.  
AD-A022 085
- \*HOT WATER  
Market Evaluation Study: Solar  
Domestic Water Heaters for DOD  
barracks.  
AD-A036 479
- \*HOUSING PROJECTS  
Cost Effectiveness of  
Alternative Noise Reduction Methods
- for Construction of Family Housing.  
AD-A028 922
- \*HOUSING(DWELLINGS)  
Attitudes and Preferences of  
Occupants of Military Family  
Housing Communities. Volume I.  
Executive Digest.  
AD- 777 769
- Foundations for Family Housing.  
AD- 778 156
- Occupants Opinions of Military  
Housing: Responses to Open-Ended  
Questions in Army Portion of Tri-  
Services Survey.  
AD- 784 059
- Army Family Housing:  
Preferences and Attitudes About  
Housing Interiors. Volume I.  
Methodology and General Results.  
Preferences of Occupants in  
Military Family Housing.  
AD-A007 133
- Army Family Housing:  
Preferences and Attitudes about  
Housing Interiors. Volume II.  
Preferences.  
AD-A007 741
- Army Family Housing:  
Preferences and Attitudes About  
Housing Interiors. Volume III:  
Predictors of Satisfaction with  
Housing Interiors.  
AD-A011 187
- Monitoring of the Fort Knox  
Industrialized BQQ Project--Design  
and Construction Phases.  
AD-A019 929
- A Site Selection Procedure for  
Military Family Housing.  
AD-A028 387
- User Evaluation of the Fort Knox  
Industrialized BQQ (Bachelor  
Officers' Quarters) Project.  
AD-A030 092
- Real Estate Cost Estimating  
Techniques for PL 91-846 Relocation  
Costs.  
AD-A075 511
- Total Contract Maintenance for  
Mannheim Family Housing.

SUBJECT INDEX-23  
UNCLASSIFIED 099062

HAR-HOU



# UNCLASSIFIED

- AD-A080 609  
Housing Maintenance Contract  
Guide.  
AD-A084 539
- COSTS  
Initial Quality and Life-Cycle  
Costs in Military Family Housing.  
AD- 764 452
- \*HOUSINGS  
Site Concept Plan Development  
Manual for Family Housing.  
AD-A034 167
- \*HOWITZERS  
FOUNDATIONS(STRUCTURES)  
Soil Stabilization Investigation  
for 155 mm Towed Howitzer Firing  
pads.  
AD- 766 299
- \*HUMAN FACTORS ENGINEERING  
Employee-Attitude and Office  
Environment Analyses for the  
Development of Human and  
Architectural Requirements for the  
Buffalo District Office, Buffalo,  
N.Y. Buffalo Office Study Part I.  
AD- 775 430
- Conceptualization of  
Habitability Expressions for the  
Habitability Data Base.  
AD-A029 661
- Concepts for the Generation,  
Communication, and Evaluation of  
Habitability Criteria.  
AD-A041 187
- Development of an Objective  
Definition of Habitability and a  
Habitability Data Base.  
AD-A041 188
- Establishing Habitability  
Factors for the Design of Office  
Environments.  
AD-A056 463
- MILITARY FACILITIES  
Initial Report on Systemizing  
Information to Identify and Relate  
Behavioral and Physical Design
- Parameters.  
AD- 757 627
- \*HYDRAULIC EQUIPMENT  
Corrosion Control in Civil  
Works: Cathodic Protection.  
AD-A045 184
- \*HYDROCARBONS  
Identification and  
Quantification of Hydrocarbon  
Products in Effluents.  
AD-A088 268
- \*HYDROGEN EMBRITTLEMENT  
Fatigue Failure of Hydrogen-  
Embrittled High-Strength Steels.  
AD-A013 380
- \*HYDROGRAPHIC SURVEYING  
Graphic Materials to Support  
Biophysical Quantitative  
Environmental Impact Analysis--  
Sources of Existing Materials.  
AD-A069 097
- \*IDENTIFICATION  
Identification and  
Quantification of Hydrocarbon  
Products in Effluents.  
AD-A088 268
- \*IMAGE PROCESSING  
Investigation of Automated  
Evaluation of Field Weld  
Radiographs.  
AD-A028 605
- \*IMPULSE NOISE  
True-Integrating Environmental  
Noise Monitor and Sound Exposure  
Level Meter. Volume I. User's  
Guide.  
AD-A060 958
- \*INCINERATORS  
Technical Evaluation Study,  
Solid Waste Generation and  
Disposal, Watervliet Arsenal,  
Watervliet, N.Y.  
AD- 772 897
- Design Features of Package  
Incinerator Systems.  
AD-A040 743
- Technology Evaluation of Army-  
Scale Waste-to-Energy Systems.  
AD-A042 578
- Collecting Cost and Performance  
Data on Army New Air Pollution  
Control Equipment.  
AD-A043 171
- Field Evaluation of the Modular  
Augered-Bed Heat-Recovery Solid  
Waste Incinerator.  
AD-A054 707
- Application of the Package  
Controlled-Air, Heat-Recovery Solid  
Waste Incinerator on Army Fixed  
Facilities and Installations.  
AD-A071 539
- SANITARY ENGINEERING  
Evaluation of a Field-1/pe  
Incinerator for Human Waste  
(Theater of Operations Sewage  
Treatment Systems).  
AD- 760 490
- \*INDEXES  
ROCK  
Tentative Field Engineering  
Index for Rocks.  
AD- 751 177
- \*INDEXES(RATIOS)  
Development of a Pavement  
Condition Index for Roads and  
Streets.  
AD-A057 148
- \*INDICATORS  
Evaluation of Load-Indicating  
Devices (LIDS) for Mobile  
Construction Cranes.  
AD-A032 569
- \*INDUSTRIAL ENGINEERING  
An Interim Guide to  
Industrialized Building Systems.  
AD-A034 131
- \*INDUSTRIAL EQUIPMENT

SUBJECT INDEX-24  
UNCLASSIFIED 099062

NOU-IND

# UNCLASSIFIED

Fuels: State of the Art in Industrial Utilization.  
AD-A063 239

\*INDUSTRIAL PRODUCTION  
Development of Heuristic Procedures to Analyze the Production-Transportation Problem.  
AD-A016 984

\*INDUSTRIAL RESEARCH  
Significance Ranking of Changes in the Building Industry.  
AD-A003 991

An Interim Guide to Industrialized Building Systems.  
AD-A034 131

\*INDUSTRIES  
Proceedings of the CIB W-65 Working Commission on Organization and Management of Construction. Volume III. International Council for Building Research and Documentation and Dissemination.  
AD-A051 438  
Ireland/United Kingdom-Research Consortium. Report Number 1. The Construction Industry-A perspective.  
AD-A075 801

\*INFLATABLE STRUCTURES  
Inflation Forming of Steel Fiber-Reinforced Concrete Domes.  
AD-A005 046  
Inflation/Foam/Shotcrete System for Rapid Shelter Construction.  
AD-A040 789  
Inflation/Foam/Shotcrete System for Rapid Construction of Circular Arches.  
AD-A069 878

\*INFLATION(ECONOMICS)  
The Impact of Materials Shortages on Military Construction.  
AD-A003 833

\*INFORMATION PROCESSING  
Computer-Aided Environmental

Legislative Data System (CELDS). User Manual.  
AD-A061 126

System Documentation for Computer-Aided Environmental Legislative Data System.  
AD-A061 158

Preliminary Analysis of Computer-Aided Environmental Baseline Information System (CEBIS). Phase I. System Requirements.  
AD-B046 908L

\*INFORMATION RETRIEVAL  
Access to the Military Construction Data System (MCDS): A User's Manual.  
AD-A024 141  
Automated Pavement Maintenance and Repair Management System.  
AD-A042 502

HUMAN FACTORS ENGINEERING  
Initial Report on Systemizing Information to Identify and Relate Behavioral and Physical Design Parameters.  
AD- 757 627

\*INFORMATION SYSTEMS  
Environmental Impact Computer System.  
AD- 787 295  
Development of the Military Construction Data System (MCDS). Part I.

AD-A000 710  
An Evaluation of Architectural Information Systems.  
AD-A001 616  
Development of the Environmental Technical Information System.  
AD-A009 668

Development of the Military Construction Data System (MCDS). Part II.  
AD-A024 938  
The Economic Impact Forecast System: Description and User Instructions.  
AD-A027 139

Procedures for Collection of Reliability, Availability, and Maintainability Data on Electrical and Mechanical Systems.  
AD-A064 657

Water Quality Data for Army Military Installations.  
AD-A067 253

The Baseline Information System--User's Manual.  
AD-A069 324

Modification and Extension of the Environmental Technical Information System (ETIS) for the Air Force.  
AD-A079 441

Interagency/Intergovernmental Coordination for Environmental Planning (IICEP): Systems Considerations.  
AD-A085 991

\*INSECT CONTROL  
Air Curtain Machines for Food Service Facilities.  
AD-A039 364

\*INSPECTION  
The Role of Habitability Information in Post-occupancy Evaluation.  
AD-A068 024

\*INSTRUCTION MANUALS  
Engineer Unit Days Computer Program (UNDAY) - User's Manual.  
AD-A072 001

\*INSTRUMENTATION  
Evaluation of Instrumentation for Testing Large Generator Sets.  
AD-A050 169

\*INTEGRAL TRANSFORMS  
FOURIER ANALYSIS  
Laplace Transform Inversion by Fourier Series Expansion.  
AD- 755 525

\*INTEGRATED SYSTEMS  
Consolidation of RPMA at

SUBJECT INDEX-25  
UNCLASSIFIED 099062

IND-INT

# UNCLASSIFIED

Fayetteville, NC. Volume II.  
Summary Cost Analysis for  
Consolidation of RPMA in the  
Fayetteville, NC Area.  
AD-A030 518  
Consolidation of RPMA at  
Fayetteville, NC. Volume III. Cost  
Analysis Support and Backup Data  
for the Consolidation of RPMA in  
the Fayetteville, NC Area.  
AD-A030 519

\*INVENTORY  
Analysis of Real Property  
Inventory Reporting Procedures.  
AD-A068 360

\*ISOCYANATE PLASTICS  
EXPANDED PLASTICS  
A Feasibility Study on the Use  
of Foam-in-Place Urethane  
Insulation in Masonry Cavity Walls.  
AD- 728 169

\*JET TRANSPORT PLANES  
AIRCRAFT LANDINGS  
Keyed Joint Performance Under  
Heavy Load Aircraft.  
AD- 766 706

\*JOB ANALYSIS  
The Job Activities Description  
(JAD) Questionnaire: An Analysis of  
Time Spent on and Importance of  
Managerial Duties.  
AD-A074 175

\*JOINTS  
PERFORMANCE (ENGINEERING)  
Keyed Joint Performance Under  
Heavy Load Aircraft.  
AD- 766 706

\*JUNCTION BOXES  
EMP Evaluation of Junction  
Boxes, Junction-Box Covers, and  
Gaskets.  
AD-A010 631  
Investigation of RF Coupling and  
Radiation Leakage Parameters of  
Some Typical Junction Box Circuitry

Configurations.  
AD-A023 596

\*KITS  
Recommendations for Concrete  
Forming Kit for Theater of  
Operations Applications.  
AD-A058 832

\*LABOR  
Changes in the Cost and  
Availability of Construction Labor.  
AD-A021 388

\*LAMINATES  
Design Criteria for Theater of  
Operations Glued-Laminated Timber  
Highway Bridges. Volume I.  
AD-A035 687  
Design Criteria for Theater of  
Operations Glued-Laminated Timber  
Highway Bridges. Volume II.  
Appendices A-E.  
AD-A035 688

\*LAND USE  
Technical Background: Interim  
Criteria for Planning Rotary-Wing  
Aircraft Traffic Patterns, and  
Siting Noise-Sensitive Land Uses.  
AD-A031 449  
User Manual: Interim Procedure  
for Planning Rotary-Wing Aircraft  
Traffic Patterns and Siting Noise-  
Sensitive Land Uses.  
AD-A031 450  
Deficiency Judgments in Real  
Estate Eminent Domain Proceedings.  
AD-A055 874  
Compendium of Administrators of  
Land Use and Related Programs.  
AD-A057 226  
Data Requirements for Army Land  
Use Planning and Management.  
AD-A062 599  
Simplified Sanitary Landfill  
Design and Operation Analysis.  
AD-A064 356

\*LANDING FIELDS  
User Manual for LIFE1 Computer

Program.  
AD- 774 849  
Methodology and Effectiveness of  
Drainage Systems for Airfield  
Pavements.  
AD-A003 237  
Fibrous Concrete Pavement Design  
Summary.  
AD-A012 731

AIRCRAFT LANDINGS  
Aircraft-Pavement Interaction  
Studies, Phase I: A Finite-Element  
Model of a Jointed Concrete  
Pavement on a Non-Linear Viscous  
Subgrade (Dynamic Interaction of  
Aircraft-Pavement Systems).  
AD- 764 243

CONCRETE  
Nondestructive Testing of  
Concrete Pavements: Equipment  
Evaluation.  
AD- 907 397L

PAVEMENTS  
Airfield Pavement Systems.  
AD- 724 132  
Inspection of Pavement Grooving.  
AD- 757 208  
Technological Forecasting: A  
Case Study of Long-Term  
Requirements for Rigid Airfield  
Pavement Systems.  
AD- 767 530  
Serviceability of Repairs to  
Rigid Pavement.  
AD- 870 723L  
Stabilization for Pavements.  
AD- 892 386L

\*LEAD(METAL)  
Comparison of Selected  
Conductive Polyolefin and Lead  
Floorings.  
AD-A033 757

\*LEGISLATION  
Computer-Aided Environmental  
Legislative Data System (CELDS).  
User Manual.

SUBJECT INDEX-26  
UNCLASSIFIED 099062

INV-LEG

# UNCLASSIFIED

- AD-A061 126  
System Documentation for  
Computer-Aided Environmental  
Legislative Data System.  
AD-A061 158
- \*LIFE CYCLE COSTS  
Systems Approach to Life-Cycle  
Design of Pavements. Volume I.  
LIFE2 User's Manual.  
AD-A061 157  
Systems Approach to Life-Cycle  
Design of Pavements. Volume III.  
LIFE2 Program Listing.  
AD-A064 698  
Systems Approach to Life-Cycle  
Design of Pavements. Volume II.  
LIFE2 System Documentation.  
AD-A067 691
- \*LIFE EXPECTANCY  
Information Storage and  
Retrieval System for Life  
Expectancy of Facilities.  
AD- 782 912  
Estimating the Life Expectancy  
of Facilities.  
AD-A009 522
- \*LIGHT TRANSMISSION  
The Effects of Fast and Thermal  
Neutron Flux and Gamma Radiation on  
the Transmission Characteristics of  
Optical Fibers.  
AD-A042 429
- \*LIGHTING EQUIPMENT  
Reliability Analysis for  
Airfield Lighting Systems.  
AD-A054 309
- HELIPORTS  
DEVELOPMENT STUDY FOR A VFR  
HELIPORT STANDARD LIGHTING SYSTEM.  
AD- 710 982
- \*LOADS(FORCES)  
Evaluation of Load-Indicating  
Devices (LIDS) for Mobile  
Construction Cranes.  
AD-A032 569
- TEST EQUIPMENT  
Nondestructive Testing of  
Concrete Pavements: Equipment  
Evaluation.  
AD- 907 397L
- \*LOCKS(WATERWAYS)  
Cathodic Protection Design for  
Brackish Water Systems: Fresh  
Water Bayou Lock.  
AD-A054 307  
Cathodic Protection of Civil  
Works Structures.  
AD-A080 057
- \*LOGISTICS  
MANAGEMENT PLANNING AND CONTROL  
Optimization of Resource  
Allocation in Maintenance  
Management Logistics Systems.  
AD- 750 386
- OPTIMIZATION  
Optimization of Resource  
Allocation in Maintenance  
Management Logistics Systems.  
AD- 757 169
- \*LOGISTICS PLANNING  
Evaluation System for Proposed  
Theater of Operations Structures.  
Volume I. Executive Summary.  
AD-A006 014  
Evaluation System for Proposed  
Theater of Operations Structures.  
Volume II. Technical Report.  
AD-A006 495
- \*LUMBER  
Development of Guidelines for  
the Army Timber Harvesting Program.  
AD-A071 637
- \*MAINTENANCE  
Automated Scheduling of  
Maintenance Events: Status of  
Fitzsimons Hospital Study.  
AD- 772 896  
Consolidation of RPMA at  
Fayetteville, N. C. Volume I.  
Executive Summary for the Study of
- Consolidation of RPMA in the  
Fayetteville, N. C. Area.  
AD-A033 754
- LOGISTICS PLANNING  
Documentation of Extended  
Analysis and Planning Subroutines  
for Onsite Management Records  
System (OMRS) - September 1972.  
AD- 769 599
- \*MAINTENANCE MANAGEMENT  
Consolidation of RPMA at  
Fayetteville, NC. Volume II.  
Summary Cost Analysis for  
Consolidation of RPMA in the  
Fayetteville, NC Area.  
AD-A030 518  
Consolidation of RPMA at  
Fayetteville, NC. Volume III. Cost  
Analysis Support and Backup Data  
for the Consolidation of RPMA in  
the Fayetteville, NC Area.  
AD-A030 519  
Consolidation of RPMA at  
Fayetteville, NC. Volume IV.  
General Procedures for Conducting  
RPMA Consolidation Studies.  
AD-A041 331  
Management Summary: Hospital  
Equipment Maintenance System.  
AD-A044 454  
Development of a Pavement  
Maintenance Management System.  
Volume I. Airfield Pavement  
Condition Rating.  
AD-A048 884  
Development of a Pavement  
Maintenance Management System.  
Volume II. Airfield Pavement  
Distress Identification Manual.  
AD-A049 029  
Development of a Pavement  
Maintenance Management System.  
Volume III. Maintenance and Repair  
Guidelines for Airfield Pavements.  
AD-A056 575  
Development of a Pavement  
Maintenance Management System.  
Volume IV. Appendices A through I.  
Maintenance and Repair Guidelines

SUBJECT INDEX-27  
UNCLASSIFIED 099062

LIF-MA1

# UNCLASSIFIED

- for Airfield Pavements.  
AD-A060 883  
Management Summary. Facilities Engineering Equipment Maintenance System (FEEMS).  
AD-A061 091  
Development of a Pavement Condition Rating Procedure for Roads, Streets, and Parking Lots. Volume I. Conditions Rating Procedure.  
AD-A074 170  
Total Contract Maintenance for Mannheim Family Housing.  
AD-A080 609  
Facility Information for: U.S. Army Tactical Vehicle Organizational and Support Maintenance.  
AD-A083 683
- \*MANAGEMENT  
Army Corps of Engineers, Box 4005, Champaign, Illinois 61820.  
Telephone: AC 217-352-6511, Fts 958-7011  
AD- 990 800  
Proceedings of the CIB W-65 Symposium on Organization and Management of Construction, 19-20 May 76, U.S. National Academy of Sciences, Washington, D. C.  
AD-A025 317  
Proceedings of the CIB W-65 Symposium on Organization and Management of Construction, 19-20 May 76, U.S. National Academy of Sciences, Washington, D.C. Volume II. Opening Addresses, Rapporteur Reviews, and Discourses.  
AD-A045 708  
Proceedings of the CIB W-65 Working Commission on Organization and Management of Construction. Volume III. International Council for Building Research and Documentation and Dissemination.  
AD-A051 438  
Directory of Construction Engineering Programs in Organization and Management of
- Construction.  
AD-A084 188  
Real Estate Model of Activity Performance (REMAP) User's Manual.  
AD-A057 146  
Real Estate Organization Analysis Using the Real Estate Model of Activity Performance (REMAP) Evaluation Procedures.  
AD-A057 147
- \*MANAGEMENT ENGINEERING  
Real Estate Model of Activity Performance (REMAP) User's Manual.  
AD-A057 146  
Real Estate Organization Analysis Using the Real Estate Model of Activity Performance (REMAP) Evaluation Procedures.  
AD-A057 147
- \*MANAGEMENT INFORMATION SYSTEMS  
Automated Design and Construction Progress Reporting Procedures. Volume II.  
AD-A012 727  
ADP Manual for the Automated Military Construction Progress Reporting System (AMPRC).  
AD-A018 437  
Reference Manual for the Automated Military Progress Reporting System (AMPRS).  
AD-A018 438  
Conversion Instructions for the Automated Military Construction Progress Reporting System (AMPRS).  
AD-A018 439  
Effective Use of Systems Building Technology: Open Systems Catalog. Volume III. Building Products Information.  
AD-A040 758  
Automated Pavement Maintenance and Repair Management System.  
AD-A042 582  
Real Estate Model of Activity Performance (REMAP) User's Manual.  
AD-A057 146  
Real Estate Organization Analysis Using the Real Estate Model of Activity Performance (REMAP) Evaluation Procedures.  
AD-A057 147  
Clearinghouse Information System: Description and User Instructions.  
AD-A059 176  
Zero Base Budget, Civil Works
- Operation and Maintenance System: Executive Summary.  
AD-A088 634
- COMPUTER PROGRAMS  
Documentation of Extended Analysis and Planning Subroutines for Onsite Management Records System (DMRS) - September 1972.  
AD- 769 599
- \*MANAGEMENT PLANNING AND CONTROL  
An Integrated Approach to Construction Management.  
AD- 770 374  
Development of Heuristic Procedures to Analyze the Production-Transportation Problem.  
AD-A016 984  
Air Pollution Survey Guidelines for Army Installations.  
AD-A029 633  
An Interim Guide to Industrialized Building Systems.  
AD-A034 131  
Military Construction Supervision and Administration Cost Forecasts.  
AD-A040 742  
Effective Use of Systems Building Technology: Open Systems Catalog. Volume I. Open Systems Guide.  
AD-A040 756  
Effective Use of Systems Building Technology: Open Systems Catalog. Volume II. Prototype Performance Specifications.  
AD-A040 757  
Automated Pavement Maintenance and Repair Management System.  
AD-A042 582  
Supervision and Administration Cost/Rate Forecasting System. Volume I. User's Manual.  
AD-A053 229  
Pollution Abatement Management System--Concept Definition.  
AD-A055 565  
Blocks to Effective Technology Transfer in Construction.

SUBJECT INDEX-28  
UNCLASSIFIED 099062

MAN-64M

# UNCLASSIFIED

AD-A069 596  
Development of Guidelines for  
the Army Timber Harvesting Program.  
AD-A071 637

LOGISTICS  
Optimization of Resource  
Allocation in Maintenance  
Management Logistics Systems.  
AD- 750 386

SCIENTIFIC RESEARCH  
An Introduction to Technological  
Forecasting.  
AD- 755 523

\*MANUALS  
Development of a Design Manual  
for Concrete Floor Slabs on Grade.  
AD- 773 715  
User Manual for the Acquisition  
and Evaluation of Operational Blast  
Noise Data.  
AD- 782 911  
Pavement Inspection Reference  
Manual.  
AD-A017 329  
Computer-Aided Environmental  
Impact Analysis for Industrial,  
Procurement, and Research,  
Development, Test, and Evaluation  
Activities: User Manual.  
AD-A056 997  
Systems Approach to Life-Cycle  
Design of Pavements. Volume I.  
LIFE2 User's Manual.  
AD-A061 157  
Computer-Aided Environmental  
Impact Analysis for Army Real  
Estate Actions: User Manual.  
AD-A068 746  
Basic Analytical Model for  
Environmental Impact Assessment of  
Surface Water Resources--DOSAG User  
Manual.  
AD-A069 977

\*MARTENSITE  
Aligned Ferrous Mantensite.  
AD-A030 314

\*MASONRY  
Waterproofing Materials for  
Prevention of Windblown Rain  
Penetration through Masonry Walls.  
AD-A008 997

\*MATERIALS  
CLEANING COMPOUNDS  
Laboratory and Field Study of  
Rubber Removal Compounds.  
AD- 890 034L

\*MATERIALS HANDLING EQUIPMENT  
Material Handling Equipment for  
Commissary Warehouses.  
AD-A027 385  
Material Handling Equipment  
Selection Guide for Commissary  
Warehouses.  
AD-A027 386

\*MATHEMATICAL ANALYSIS  
Analysis of a Nonlinear  
Electromagnetic Field Penetration  
Problem.  
AD-A056 424

\*MATHEMATICAL MODELS  
Modifications Processing  
Procedures: A Generalized  
Stochastic Network Model.  
AD-A043 717  
Liquid-Spring Shock Isolator  
Modeling.  
AD-A044 993  
Methodology for Establishing  
Equipment Utilization Standards.  
AD-A058 559

\*MATHEMATICAL PREDICTION  
Development of the Economic  
Impact Forecast System (EIFS)--the  
Multiplier Aspects.  
AD-A057 936

\*MATS  
Study of Articulated Concrete  
Revetment Mattress: Test and  
Analysis - Results of FY 1974  
Program.  
AD-A021 774

Study of Articulated Concrete  
Revetment Mattress: Test and  
Analysis--Results of FY 1975  
Program.  
AD-A033 440

\*MECHANICAL CABLES  
An Investigation of the  
Susceptibility of Post-Tensioning  
Cables to Stress-Corrosion  
Cracking.  
AD-A035 258

\*MECHANICAL PROPERTIES  
Determination of the Effect of  
Current and Travel Speed of Gas  
Metal-Arc Welding on the Mechanical  
Properties of A36, A516, and A514  
Steels.  
AD-A085 342

\*MEDICAL EQUIPMENT  
Management Summary: Hospital  
Equipment Maintenance System.  
AD-A044 454

\*MEETINGS  
Rapid Testing of Fresh Concrete.  
AD-A009 702

\*METAL FIBERS  
Fibrous Concrete Pavement Design  
Summary.  
AD-A012 731  
Steel Fibers as Web  
Reinforcement in Reinforced  
Concrete.  
AD-A056 496

\*METEOROLOGICAL DATA  
The Statistics of Amplitude and  
Spectrum of Blasts Propagated in  
the Atmosphere Volume II.  
Appendices C through E.  
AD-A033 361

\*METHODOLOGY  
Automated Design and  
Construction Progress Reporting  
Procedures. Volume I.  
AD- 771 178

SUBJECT INDEX-29  
UNCLASSIFIED 099062

MAN-MET

# UNCLASSIFIED

## \*MICROPROCESSORS

True-Integrating Environmental Noise Monitor and Sound-Exposure Level Meter. Volume III. Microprocessor Program and Data Interface Description.  
AD-A083 320

## \*MICROSTRUCTURE

Fracture Characteristics of Structural Steels: Reference Manual.  
AD-A072 054

## \*MIGRATION

An Analysis of Military Migration in the United States.  
AD-A076 552

## \*MILITARY APPLICATIONS

Computer-Aided Environmental Impact Analysis for Construction Activities: User Manual.  
AD-A008 988

Environmental Impact Computer System Attribute Descriptor Package. Reference Document.  
AD-A024 303

A Site Selection Procedure for Military Family Housing.  
AD-A028 387

## \*MILITARY BRIDGES

Design Criteria for Theater of Operations Glued-Laminated Timber Highway Bridges. Volume I.  
AD-A035 687

Design Criteria for Theater of Operations Glued-Laminated Timber Highway Bridges. Volume II. Appendices A-E.  
AD-A035 688

Design Criteria for Theater of Operations Steel Highway Bridges. Volume I.  
AD-A035 763

Design Criteria for Theater of Operations Steel Highway Bridges. Volume II. Appendices A-I.  
AD-A035 779

## \*MILITARY CONSTRUCTION

A Preliminary Concept for a Design Criteria Management System.  
AD-A032 125

## \*MILITARY ENGINEERING

Automated Design and Construction Progress Reporting Procedures. Volume I.  
AD-771 178

Evaluation System for Proposed Theater of Operations Structures. Volume I. Executive Summary.  
AD-A006 014

Evaluation System for Proposed Theater of Operations Structures. Volume III: User's Manual.  
AD-A006 145

Evaluation System for Proposed Theater of Operations Structures. Volume II. Technical Report.  
AD-A006 495

ADP Manual for the Automated Military Construction Progress Reporting System (AMPRS).  
AD-A018 437

Reference Manual for the Automated Military Progress Reporting System (AMPRS).  
AD-A018 438

Conversion Instructions for the Automated Military Construction Progress Reporting System (AMPRS).  
AD-A018 439

Users Manual for the Automated Military Construction Progress Reporting System (AMPRS).  
AD-A018 716

Access to the Military Construction Data System (MCDS): A User's Manual.  
AD-A024 141

Military Construction Engineering and Design Cost Forecasts.  
AD-A035 262

A Prototype Procedure for the Local Generation of Facility Requirements.  
AD-A043 172

Development of a Prototype

## Habitability Data Base.

AD-A058 824  
First Annual Summary of CAEADS development Activities.  
AD-A064 650

Computer-Aided Engineering and Architectural Design System (CAEADS). Volume I. Summary.  
AD-A065 827

Earthmoving, Lifting, and Pulling Requirements for the Combat Engineer Vehicle (CEV).  
AD-B042 190L

## \*MILITARY FACILITIES

Technical Evaluation Study, Solid Waste Generation and Disposal, Watervliet Arsenal, Watervliet, N.Y.  
AD-772 893

Technical Evaluation Study of the Consolidated Field Maintenance Facility at Fort Bragg, N.C.  
AD-772 894

Industrial Wastewaters, Red River Army Depot, Texas.  
AD-778 162

Technical Evaluation Study Solid Waste Generation and Disposal Red River Army Depot, Texas.  
AD-779 509

Selection and Design Criteria for the Army Facilities Components System.  
AD-779 511

Wood Design Parameters for Theater of Operations Applications.  
AD-780 800

User Manual for the Acquisition and Evaluation of Operational Blast Noise Data.  
AD-782 911

Information Storage and Retrieval System for Life Expectancy of Facilities.  
AD-782 912

Occupants Opinions of Military Housing: Responses to Open-Ended Questions in Army Portion of Tri-Services Survey.  
AD-784 059

SUBJECT INDEX-30  
UNCLASSIFIED 099062

MIC-MIL

# UNCLASSIFIED

<p>An Evaluation of Architectural Information Systems. AD-A001 616</p> <p>Decor Guide for Enlisted Personnel Dining Facilities. AD-A003 828</p> <p>The Impact of Materials Shortages on Military Construction. AD-A003 833</p> <p>Evaluation System for Proposed Theater of Operations Structures. Volume I. Executive Summary. AD-A006 014</p> <p>Evaluation System for Proposed Theater of Operations Structures. Volume III: User's Manual. AD-A006 145</p> <p>Evaluation System for Proposed Theater of Operations Structures. Volume II. Technical Report. AD-A006 435</p> <p>Structural Fire Protection/Prevention Consolidation Study for Fayetteville, NC Area. AD-A018 217</p> <p>Decor Guide for Commissary Store Facilities. AD-A023 972</p> <p>Section Procedures for Prefabricated Expandable Foam/Wood Structures. AD-A027 382</p> <p>Service Design Methods for Military Facilities -- Preliminary Recommendations. AD-A027 384</p> <p>Material Handling Equipment for Commissary Warehouses. AD-A027 385</p> <p>Material Handling Equipment Selection Guide for Commissary Warehouses. AD-A027 386</p> <p>Air Pollution Survey Guidelines for Army Installations. AD-A024 633</p> <p>Conceptualization for the Generation of Habitability Requirements. AD-A030 091</p> <p>User Evaluation of the Fort Knox</p>	<p>Industrialized BOQ (Bachelor Officers' Quarters) Project. AD-A030 092</p> <p>A Preliminary Concept for a Design Criteria Management System. AD-A032 125</p> <p>The Statistics of Amplitude and Spectrum of Blasts Propagated in the Atmosphere. Volume I. AD-A033 475</p> <p>Pollution Estimation Factors. AD-A033 753</p> <p>Consolidation of RPMA at Fayetteville, N. C. Volume I. Executive Summary for the Study of Consolidation of RPMA in the Fayetteville, N. C. Area. AD-A033 754</p> <p>Fragility Data Analysis and Testing Guidelines for Essential Equipment Used in Critical Facilities. AD-A038 768</p> <p>Consolidation of RPMA at Fayetteville, NC. Volume IV. General Procedures for Conducting RPMA Consolidation Studies. AD-A041 331</p> <p>Shipping Containers as Structural Systems. AD-A042 179</p> <p>Fort Lee Enlisted Personnel Dining Facility Modernization Evaluation Program. AD-A042 540</p> <p>Analysis of Central Total Energy Systems at Military Facilities. AD-A044 413</p> <p>Fixed Facilities Energy Consumption Investigation Initial Facts Data. AD-A051 074</p> <p>Fixed Facilities Energy Consumption Investigation Data Users Manual. AD-A052 708</p> <p>Application of Modern Coal Technologies to Military Facilities. Volume I. Summary of findings. AD-A055 560</p>	<p>The Rational Threshold Value (RTV) Technique for the Evaluation of Regional Economic Impacts. AD-A055 561</p> <p>Real Estate Model of Activity Performance (REMAP) User's Manual. AD-A057 146</p> <p>Real Estate Organization Analysis Using the Real Estate Model of Activity Performance (REMAP) Evaluation Procedures. AD-A057 147</p> <p>Use of 'Ideal' Ratings as a Standard for Evaluating Facilities. AD-A058 570</p> <p>Effects of Corrosion on Military Facilities of the Presidio of San Francisco. AD-A058 727</p> <p>Literature Research on Living, Working, and Training Facility Environments. AD-A059 058</p> <p>Management Summary. Facilities Engineering Equipment Maintenance System (FEEMS). AD-A061 091</p> <p>Data Requirements for Army Land Use Planning and Management. AD-A062 599</p> <p>Technical Evaluation Study: Emergency Recovery from Solid Waste at Fort Dix, NJ and Nearby Civilian Communities. AD-A062 653</p> <p>Fixed Facilities Energy Consumption Investigation -- Data Analysis. AD-A066 513</p> <p>In-Hardstand Tactical Vehicle Maintenance Facilities--Concept Design and Preliminary Recommendations for Wastewater Treatment. AD-A067 985</p> <p>The Role of Habitability Information in Post-occupancy Evaluation. AD-A068 024</p> <p>Project Development Guidelines for Converting Army Installations</p>
---	---	--

SUBJECT INDEX-31  
UNCLASSIFIED 099062

MIC-MIL



# UNCLASSIFIED

AD-707 129  
CWA Instructions,  
Specifications, and Example.  
AD-768 048

CONTRACTS  
Construction Time Overruns.  
AD-765 725

FOOD DISPENSING  
Decor Catalog for Dining  
Facilities.  
AD-760 185

SANITARY ENGINEERING  
An Economic Feasibility Study of  
Fayetteville, North Carolina,  
Treating Fort Bragg's Wastewater.  
AD-758 152

MILITARY OPERATIONS  
Construction Scheduling of AFCS  
Facilities Methodology Report.  
AD-AC27 784

MILITARY PERSONNEL  
Attitudes and Preferences of  
Occupants of Military Family  
Housing Communities. Volume I.  
Executive Digest.  
AD-777 769

Army Family Housing:  
Preferences and Attitudes About  
Housing Interiors. Volume I.  
Methodology and General Results.  
Preferences of Occupants in  
Military Family Housing.  
AD-A007 113

Army Family Housing:  
Preferences and Attitudes about  
Housing Interiors. Volume II.  
Preferences.  
AD-A007 731

Army Family Housing:  
Preferences and Attitudes About  
Housing Interiors. Volume III:  
Predictions & Satisfaction with  
Housing Interiors.  
AD-A011 187

Site Concept Plan Development  
Manual for Family Housing.

AD-764 452  
HOUSING(DWELLINGS)  
Initial Quality and Life-Cycle  
Costs in Military Family Housing.  
AD-764 452

MILITARY PLANNING  
Specification Preparation  
Methods--State of the Art.  
AD-A016 919

Technological Forecast: Changes  
in Availability and Cost of  
Construction Materials for Military  
Construction.  
AD-A020 951

Engineering and Design  
Performance Analysis.  
AD-A035 208

MILITARY PROCUREMENT  
Procuring Today's Building  
Technology: Volume I. A Summary.  
AD-A031 000

MILITARY RATIONS  
ATTITUDES(PSYCHOLOGY)  
A Methodological Investigation  
of the Use of the Semantic  
Differential and Time-Lapse  
Photography to Measure Attitude and  
Behavior in a Dining Hall at  
Chanute AFB. (Evaluation of  
Occupant Interaction with Facility  
Environments).  
AD-765 420

MILITARY REQUIREMENTS  
Changes in the Cost and  
Availability of Construction Labor.  
AD-A021 388

MILITARY VEHICLES  
Facility Information for: U.S.  
Army Tactical Vehicle  
Organizational and Support  
Maintenance.  
AD-A083 683

MODELS  
Water Quality Data for Army

SUBJECT INDEX-32  
UNCLASSIFIED 099062

MIL-MOD

A-0073 Waste Water Reclamation at  
Ad-A073 AD-Tech Center Patuxent, Md.  
AD-A075 113

•NEWBORN  
Pregnancy Results  
AD-A076 008

•NEW DEFENSE  
Evaluation Study:  
Early Recovery from Solid Waste at  
Fort Belvoir, N. and Nearby Civilian  
AD-A077 009

•NOISE REDUCTION  
Noise in Dishwashing Rooms.  
AD-A078 921

•NOISE REDUCTION  
Cost Effectiveness of  
Alternative Noise Reduction Methods  
for Construction of Family Housing.  
AD-A079 922

•NOISE REDUCTION  
A Practical Application of  
Community Noise Analyses -- Case  
Study of Allegheny County,  
Pennsylvania.  
AD-A080 232

•NOISE REDUCTION  
Construction-Site Noise Control  
Background.  
AD-A081 813

•NOISE REDUCTION  
Construction-Site Noise Control  
Cost-Benefit Estimating Procedures.  
AD-A082 737

•NOISE REDUCTION  
Hypothetical Case Studies of  
Operational Changes to Reduce Noise  
Levels.  
AD-A083 066

•NOISE REDUCTION  
Mitigation of Noise Impact via  
Operational Changes.  
AD-A084 480

•NOISE(SOUND)  
Predicting Community Response to  
Blast Noise.  
AD-A085 690

•NOISE(SOUND)  
Noise Levels in U.S. Army Corps  
of Engineers Powerhouses.  
AD-A086 545

•NOISE(SOUND)  
True-Integrating Environmental  
Noise Monitor and Sound Exposure

A-0074 Waste Water Reclamation at  
Ad-A074 AD-Tech Center Patuxent, Md.  
AD-A075 113

•NEWBORN  
Pregnancy Results  
AD-A076 008

•NEW DEFENSE  
Evaluation Study:  
Early Recovery from Solid Waste at  
Fort Belvoir, N. and Nearby Civilian  
AD-A077 009

•NOISE REDUCTION  
Noise in Dishwashing Rooms.  
AD-A078 921

•NOISE REDUCTION  
Cost Effectiveness of  
Alternative Noise Reduction Methods  
for Construction of Family Housing.  
AD-A079 922

•NOISE REDUCTION  
A Practical Application of  
Community Noise Analyses -- Case  
Study of Allegheny County,  
Pennsylvania.  
AD-A080 232

•NOISE REDUCTION  
Construction-Site Noise Control  
Background.  
AD-A081 813

•NOISE REDUCTION  
Construction-Site Noise Control  
Cost-Benefit Estimating Procedures.  
AD-A082 737

•NOISE REDUCTION  
Hypothetical Case Studies of  
Operational Changes to Reduce Noise  
Levels.  
AD-A083 066

•NOISE REDUCTION  
Mitigation of Noise Impact via  
Operational Changes.  
AD-A084 480

•NOISE(SOUND)  
Predicting Community Response to  
Blast Noise.  
AD-A085 690

•NOISE(SOUND)  
Noise Levels in U.S. Army Corps  
of Engineers Powerhouses.  
AD-A086 545

•NOISE(SOUND)  
True-Integrating Environmental  
Noise Monitor and Sound Exposure

**MOD-NOI**

# UNCLASSIFIED

- AD-770 395
- PAVEMENTS
  - Computer Program for the Finite Element Analysis of Concrete Airfield Pavements. AD-771 160
  - User Manual for LIFE1 Computer Program. AD-774 849
  - Methodology and Effectiveness of Drainage Systems for Airfield Pavements. AD-A003 237
  - Load-Deflection Behavior of Lime-Stabilized Layers. AD-A006 015
  - Pavement Functional Condition Indicators. AD-A007 152
  - The Status of Development of a Maintenance Management System for Airfield Pavements. AD-A011 589
  - Fibrous Concrete Pavement Design Summary. AD-A012 731
  - Technical Information Pamphlet on Fibrous Concrete Overlays--Fort Hood Project. AD-A015 469
  - Development of an Installation Surfaced Area Maintenance and Repair Management System. AD-A017 328
  - Pavement Inspection Reference Manual. AD-A017 329
  - LIFE2 User's Manual. AD-A023 186
  - Automated Pavement Maintenance and Repair Management System. AD-A042 582
  - The Effects of Gear Pattern on Pavement Systems Performance. AD-A048 250
  - Development of a Pavement Maintenance Management System. Volume I. Airfield Pavement Condition Rating. AD-A048 884
- AD-758 151
- OPELIN RESINS
  - Comparative Evaluation of Selected Polyethylene Glycol and Lead Compounds. AD-A033 757
- OPTICAL COMMUNICATIONS
  - State of the Art in Fiber Optics Communications and Data Transfer. AD-A042 579
- ORGANIC SOLVENTS
  - Preliminary Selection of Compatible Solvents for Vinyl Paints. AD-A067 708
- OXIDATION
  - Comparative Evaluation of Military and Commercial Ammonia Oxidation Plants Using the Pressure Process. AD-A005 045
- PAINTS
  - Maintenance Painting of Steel Structures. AD-A030 397
  - Investigation of Techniques for the Rapid Preparation of Painted Wood Surfaces. AD-A064 813
- PANELS
  - A Family of Components for the Wood Panelized Prefabricated Building System. AD-A065 659
- PAPER
  - Implementation of Resource Recovery Guidelines at Fort Meade, Fort Lewis, and Fort Sill. AD-A072 003
- PARTICLES
  - An Extended Evaluation of a Particulate Precipitating Heat Transfer Surface.
- AD-770 395
- PAVEMENTS
  - Computer Program for the Finite Element Analysis of Concrete Airfield Pavements. AD-771 160
  - User Manual for LIFE1 Computer Program. AD-774 849
  - Methodology and Effectiveness of Drainage Systems for Airfield Pavements. AD-A003 237
  - Load-Deflection Behavior of Lime-Stabilized Layers. AD-A006 015
  - Pavement Functional Condition Indicators. AD-A007 152
  - The Status of Development of a Maintenance Management System for Airfield Pavements. AD-A011 589
  - Fibrous Concrete Pavement Design Summary. AD-A012 731
  - Technical Information Pamphlet on Fibrous Concrete Overlays--Fort Hood Project. AD-A015 469
  - Development of an Installation Surfaced Area Maintenance and Repair Management System. AD-A017 328
  - Pavement Inspection Reference Manual. AD-A017 329
  - LIFE2 User's Manual. AD-A023 186
  - Automated Pavement Maintenance and Repair Management System. AD-A042 582
  - The Effects of Gear Pattern on Pavement Systems Performance. AD-A048 250
  - Development of a Pavement Maintenance Management System. Volume I. Airfield Pavement Condition Rating. AD-A048 884
- AD-758 151
- OPELIN RESINS
  - Comparative Evaluation of Selected Polyethylene Glycol and Lead Compounds. AD-A033 757
- OPTICAL COMMUNICATIONS
  - State of the Art in Fiber Optics Communications and Data Transfer. AD-A042 579
- ORGANIC SOLVENTS
  - Preliminary Selection of Compatible Solvents for Vinyl Paints. AD-A067 708
- OXIDATION
  - Comparative Evaluation of Military and Commercial Ammonia Oxidation Plants Using the Pressure Process. AD-A005 045
- PAINTS
  - Maintenance Painting of Steel Structures. AD-A030 397
  - Investigation of Techniques for the Rapid Preparation of Painted Wood Surfaces. AD-A064 813
- PANELS
  - A Family of Components for the Wood Panelized Prefabricated Building System. AD-A065 659
- PAPER
  - Implementation of Resource Recovery Guidelines at Fort Meade, Fort Lewis, and Fort Sill. AD-A072 003
- PARTICLES
  - An Extended Evaluation of a Particulate Precipitating Heat Transfer Surface.
- AD-770 395
- PAVEMENTS
  - Computer Program for the Finite Element Analysis of Concrete Airfield Pavements. AD-771 160
  - User Manual for LIFE1 Computer Program. AD-774 849
  - Methodology and Effectiveness of Drainage Systems for Airfield Pavements. AD-A003 237
  - Load-Deflection Behavior of Lime-Stabilized Layers. AD-A006 015
  - Pavement Functional Condition Indicators. AD-A007 152
  - The Status of Development of a Maintenance Management System for Airfield Pavements. AD-A011 589
  - Fibrous Concrete Pavement Design Summary. AD-A012 731
  - Technical Information Pamphlet on Fibrous Concrete Overlays--Fort Hood Project. AD-A015 469
  - Development of an Installation Surfaced Area Maintenance and Repair Management System. AD-A017 328
  - Pavement Inspection Reference Manual. AD-A017 329
  - LIFE2 User's Manual. AD-A023 186
  - Automated Pavement Maintenance and Repair Management System. AD-A042 582
  - The Effects of Gear Pattern on Pavement Systems Performance. AD-A048 250
  - Development of a Pavement Maintenance Management System. Volume I. Airfield Pavement Condition Rating. AD-A048 884
- AD-758 151
- OPELIN RESINS
  - Comparative Evaluation of Selected Polyethylene Glycol and Lead Compounds. AD-A033 757
- OPTICAL COMMUNICATIONS
  - State of the Art in Fiber Optics Communications and Data Transfer. AD-A042 579
- ORGANIC SOLVENTS
  - Preliminary Selection of Compatible Solvents for Vinyl Paints. AD-A067 708
- OXIDATION
  - Comparative Evaluation of Military and Commercial Ammonia Oxidation Plants Using the Pressure Process. AD-A005 045
- PAINTS
  - Maintenance Painting of Steel Structures. AD-A030 397
  - Investigation of Techniques for the Rapid Preparation of Painted Wood Surfaces. AD-A064 813
- PANELS
  - A Family of Components for the Wood Panelized Prefabricated Building System. AD-A065 659
- PAPER
  - Implementation of Resource Recovery Guidelines at Fort Meade, Fort Lewis, and Fort Sill. AD-A072 003
- PARTICLES
  - An Extended Evaluation of a Particulate Precipitating Heat Transfer Surface.

SUBJECT INDEX-34  
UNCLASSIFIED 099062

NON-PAV

# UNCLASSIFIED

Development of a Pavement Maintenance Management System. Volume II. Airfield Pavement Distress Identification Manual. AD-A049 029

Development of a Pavement Maintenance Management System. Volume III. Maintenance and Repair Guidelines for Airfield Pavements. AD-A056 575

Development of a Pavement Condition Index for Roads and Streets. AD-A057 148

Development of a Pavement Maintenance Management System. Volume V. Proposed Revision of Chapter 3. AFR 93-5. AD-A058 860

Development of a Pavement Maintenance Management System. Volume IV. Appendices A through I. Maintenance and Repair Guidelines for Airfield Pavements. AD-A060 883

Systems Approach to Life-Cycle Design of Pavements. Volume I. LIFE2 User's Manual. AD-A061 157

Systems Approach to Life-Cycle Design of Pavements. Volume III. LIFE2 Program Listing. AD-A064 698

Systems Approach to Life-Cycle Design of Pavements. Volume II. LIFE2 System Documentation. AD-A067 691

Development of a Pavement Condition Rating Procedure for Roads, Streets, and Parking Lots. Volume I. Conditions Rating Procedure. AD-A074 170

Development of a Pavement Condition Rating Procedure for Roads, Streets, and Parking Lots. Volume II. Distress Identification Manual. AD-A074 171

ACCEPTABILITY

The User Requirements for an Airfield Pavement System. AD- 753 927

CONSTRUCTION

Stabilization Studies: Turkish Soils. AD- 729 661

CRACKS

Study of Reflection Cracking in Asphaltic Concrete Overlay Pavements, Phase I. AD- 894 275L

DESIGN

Proceedings, Allerton Park Conference on Systems Approach to Airfield Pavements, 23-26 March 1970 (Rational Pavement Design). AD- 763 212

DETERIORATION

Study of Causes of Pavement Deterioration. Investigation of Techniques and/or Methods to Retard 'D' Line Cracking in PCC Pavements and Structures. AD- 894 873L

FOUNDATIONS (STRUCTURES)

Strength and Durability of Stabilized Layers under Existing Pavements. AD- 715 400

INTERACTIONS

Aircraft-Pavement Interaction Studies, Phase I: A Finite-Element Model of a Jointed Concrete Pavement on a Non-Linear Viscous Subgrade (Dynamic Interaction of Aircraft-Pavement Systems). AD- 764 243

JOINTS

Keyed Joint Performance Under Heavy Load Aircraft. AD- 766 706

LANDING FIELDS

Airfield Pavement Systems. AD- 724 132

Technological Forecasting: A Case Study of Long-Term Requirements for Rigid Airfield Pavement Systems. AD- 767 530

Stabilization for Pavements. AD- 892 386L

LOADS (FORCES)

An Analysis of Pickett's Solution to Westergaard's Equation for Rigid Pavements. AD- 755 526

MAINTAINABILITY

Serviceability of Repairs to Rigid Pavement. AD- 870 723L

MAINTENANCE

Pavement Distress Identification and Repair. AD- 758 447

NONDESTRUCTIVE TESTING

Nondestructive Testing of Concrete Pavements: Equipment Evaluation. AD- 907 397L

REINFORCED CONCRETE

Fibrous Concrete for Pavement Applications. AD- 741 357

Fiber Reinforced Concrete a General Discussion of Field Problems and Applications. AD- 741 358

Fibrous Concrete - Construction Material for the Seventies (May 1-3, 1972). AD- 756 384

SKIDDING

Inspection of Pavement Grooving. AD- 757 208

STABILIZATION

Stabilization for Pavements.

SUBJECT INDEX-35  
UNCLASSIFIED 099062

NON-PAV

# UNCLASSIFIED

- AD- 763 912
- STRESSES**  
Small-Scale Static Load Model Study: Behavior of Rigid Pavement Loaded Near the Edge.  
AD- 742 214
- The effects of Stress History on the Resilient Response of Soils.  
AD- 762 194
- \*PELLETS**  
Densified Biomass as an Alternative Army Heating and Power Plant Fuel.  
AD-A083 317
- \*PERFORMANCE (ENGINEERING)**  
The Performance of an Experimental Solar Heating System.  
AD-A066 699
- \*PERSONNEL**  
Literature Research on Living, Working, and Training Facility Environments.  
AD-A059 058
- \*PERSONNEL MANAGEMENT**  
The Job Activities Description (JAD) Questionnaire: An Analysis of Time Spent on and Importance of Managerial Duties.  
AD-A074 175
- \*PHASE TRANSFORMATIONS**  
Aligned Ferrous Mantensite.  
AD-A030 314
- \*PHOTOELASTICITY**  
STEREOPHOTOGRAPHY  
FEASIBILITY STUDY OF  
PHOTOMECHANICS TECHNIQUES APPLIED TO STRESS ANALYSIS IN THREE DIMENSIONS.  
AD- 711 526
- \*PILE STRUCTURES**  
First Annual Inspection of Buzzards Bay Pileings.  
AD-A024 381
- Coatings and Cathodic Protection of Pileings in Seawater: Results of 5-Year Exposure.  
AD-A038 832
- Corrosion of Steel Pileings in Seawater: Buzzards Bay -- 1975-1978.  
AD-A078 626
- \*PIPES**  
Development and Evaluation of Repairs for EMP Leaks in Conduit Systems.  
AD-A011 223
- EMP Shielding Properties of Conduit Systems and Related Hardware.  
AD-A012 729
- Investigation of Plastic Pipe for Use by the Corps of Engineers.  
AD-A042 313
- Schedule 40 Polyvinyl Chloride Pipe for Army Theater of Operations Construction.  
AD-A056 300
- Durability and Fire-Spread Aspects of Plastic Pipe Systems.  
AD-A073 031
- PLASTICS**  
Plastic Pipe for Interior and Exterior Cold Water Distribution Systems.  
AD- 763 902
- \*PLASTIC PAINTS**  
Review of Formulation and Testing Procedures for Coal Tar Epoxy (SSPC Paint 16-68T).  
AD-A030 566
- Spray Painting: Equipment and Techniques for Application of Vinyl Paints.  
AD-A039 029
- Preliminary Selection of Compatible Solvents for Vinyl Paints.  
AD-A067 708
- \*PLASTIC PROPERTIES**  
Isotropic-Kinematic Hardening
- Model for Elastic-Plastic Cyclic Structural Analysis.  
AD-A014 945
- A Plasticity Formulation for Cyclic Inelastic Structural Analysis.  
AD-A036 473
- \*PLASTICS**  
The Design of a Plastic Structural System (ILIR).  
AD-A011 224
- Durability and Fire-Spread Aspects of Plastic Pipe Systems.  
AD-A073 031
- \*POLLUTION**  
Environmental Impact Assessment Study for Army Military Programs.  
AD- 771 062
- Environmental Protection Guidelines for the Resident Engineer.  
AD-A012 109
- User Evaluation of CERL Air, Water/Wastewater, and Solid Waste Survey Guidelines.  
AD-A061 123
- \*POLLUTION ABATEMENT**  
Air Pollution Survey Guidelines for Army Installations.  
AD-A029 633
- Pollution Abatement Management System--Concept Definition.  
AD-A055 565
- Preliminary Selection of Compatible Solvents for Vinyl Paints.  
AD-A067 708
- Evaluation of Alternatives for Restoring the South Boiler House at Joliet AAP to High-Sulfur-Coal Burning Capability.  
AD-A069 374
- \*POLYESTER PLASTICS**  
CONCRETE  
Creep Characteristics of Polyester Concretes.  
AD- 752 454

SUBJECT INDEX-36  
UNCLASSIFIED 099062

PEL-POL

# UNCLASSIFIED

Development and Evaluation of a High-Strength Polyester Synthetic Concrete.  
AD- 867 374L

## \*POLYMERS

Mechanical Behavior of Viscoelastic Materials.

AD- 772 895

The Soil-Polymer System.  
AD- 775 812

## \*POLYSTYRENE

Feasibility of Structural Foam/Concrete Building for Theater of Operations Use.

AD- 8053 272

## \*POLYURETHANE RESINS

Fire/Flammability Test of Polyurethane Foams and Protective Coatings.

AD- 8028 386

Foam/Wood Structures for Theater of Operations.

AD- 8044 991

Dome Shelter Construction with Polyurethane Foam.

AD- 8044 992

Construction with Field Moldable Polyurethane Foam Blocks.

AD- 8054 440

Damaged Building Repair with Polyurethane Foam.

AD- 8057 435

Foam Overhead Cover Support (FOCOS) System for Dismounted and Mounted TOW Positions.

AD- 8075 746

Investigation of Rapidly Deployable Plastic Foam Systems. Volume II. Nonlinear Deformation and Local Buckling of Kevlar Fabric/Polyurethane Foam Composites.

AD- 8076 310

Investigation of Rapidly Deployable Plastic Foam Systems. Volume I. System Development.

AD- 8076 332

## \*POLYVINYL CHLORIDE

Schedule 40 Polyvinyl Chloride Pipe for Army Theater of Operations Construction.

AD- 8056 300

## \*POROSITY

The Effects of Clustered Porosity on the Shear Strength of A 514F Transverse Fillet Welds.

AD- 8034 662

The Effects of Base Metal Notch Orientation and Acuity and Weld Porosity on the Dynamic Tear Toughness of A514F Steel.

AD- 8037 046

The Effects of Weld Porosity on the Fracture Toughness of A514F Steel.

AD- 8045 185

## \*PORTABLE SHELTERS

Dome Shelter Construction with Polyurethane Foam.

AD- 8044 992

## \*POWER EQUIPMENT

Noise Levels in U.S. Army Corps of Engineers Powerhouses.

AD- 8058 545

## \*POWER SUPPLIES

Facility Simulation Model for Advanced BMD Systems. Volume IVA. Power Module: User's Manual.

AD- 8011 227

Facility Simulation Model for Advanced BMD Systems. Volume IVC. Power Module: Program Listing.

AD- 8011 231

The Feasibility of a Storable Propellant Turbine/High-Speed Alternator as a Compact Short-Life Power System for Hardened Ballistic Missile Defense (BMD) Installations.

AD- 8024 786

## \*PREDICTIONS

Hypothetical Case Studies of Operational Changes to Reduce Noise

Levels.  
AD- 8055 066  
Investigation of Methods to Predict Thermal Stratification and Its Effect on Solar Energy System Performance.  
AD- 8086 051

## \*PREFABRICATED BUILDINGS

Field Experiment on a Prefabricated Expandable Foam/Wood Structure.

AD- 8032 726

Prefabricated Expandable Foam/Wood Structures for Theater of Operations.

AD- 8044 991

A Family of Components for the Wood Panelized Prefabricated Building System.

AD- 8065 659

## ARMY

Study on the Potential Use of Industrialized Building for the Department of the Army. Volume I: Summary.

AD- 732 853

Study on the Potential Use of Industrialized Building for the Department of the Army. Volume II: Narrative.

AD- 732 854

Study on the Potential Use of Industrialized Building for the Department of the Army. Volume III: Appendices.

AD- 732 855

## \*PREMATURE FUNCTIONING(ORDNANCE)

Compatibility Study of Conductive Flooring.

AD- 8029 410

## \*PREVENTIVE MAINTENANCE

The Status of Development of a Maintenance Management System for Airfield Pavements.

AD- 8011 589

## \*PROCUREMENT

SUBJECT INDEX-37

UNCLASSIFIED

099062

POL-PRO

# UNCLASSIFIED

Procuring Today's Building Technology. Volume II.  
AD-A030 520

## \*PROFITS

Profit Primer: An Evaluation of Alternate Profit Determination Models.  
AD-A066 112

The Wages of Risk: Determining Fair and Reasonable Profit Objectives.  
AD-A088 925

## \*PROGRAMMING MANUALS

ADP Manual for the Automated Military Construction Progress Reporting System (AMPRS).  
AD-A018 437

Reference Manual for the Automated Military Progress Reporting System (AMPRS).  
AD-A018 438

Conversion Instructions for the Automated Military Construction Progress Reporting System (AMPRS).  
AD-A018 439

Users Manual for the Automated Military Construction Progress Reporting System (AMPRS).  
AD-A018 716

LIFE2 User's Manual.

AD-A023 186

The Building Loads Analysis and System Thermo-Dynamics (BLAST) Program. Volume II. Reference Manual.  
AD-A048 982

## \*PROTECTIVE COATINGS

First Annual Inspection of Buzzards Bay Piling.  
AD-A024 381

## \*PROTECTIVE COVERINGS

Foam Overhead Cover Support (FOCOS) System for Dismounted and Mounted TOW Positions.  
AD-A075 746

## \*PUBLIC OPINION

Survey of Soldiers' Attitudes Toward Troop Housing. Volume I: Summary Report.  
AD-A009 700

Survey of Soldiers' Attitudes Toward Troop Housing. Volume II.  
AD-A009 701

## \*QUALITY ASSURANCE

Built-Up Roof Construction Quality Control.  
AD-A073 619

## \*QUALITY CONTROL

Built-Up Roof Construction Quality Control.  
AD-A073 619

## \*QUANTITATIVE ANALYSIS

Identification and Quantification of Hydrocarbon Products in Effluents.  
AD-A088 268

## \*RADAR ANTENNAS

Development of a Composite Material for Construction of Antenna Element Radomes.  
AD-B020 359L

## \*RADIATION DAMAGE

The Effects of Fast and Thermal Neutron Flux and Gamma Radiation on the Transmission Characteristics of Optical Fibers.  
AD-A042 429

## \*RADIATION HARDENING

EMP Shielding Properties of Conduit Systems and Related Hardware.  
AD-A012 729

## \*RADIOACTIVATION ANALYSIS

A Comparative Evaluation of the Neutron/Gamma and Kelly-Vail Techniques for Determining Water and Cement Content of Fresh Concrete.  
AD-A040 061

\*RADIOFREQUENCY INTERFERENCE  
RFI Shielding Effectiveness of Steel Sheets with Partly Welded Seams.  
AD-A019 931

Selection of Recommended Electromagnetic Interference/Radio Frequency Interference Shielding Effectiveness Test Procedures for Military Tactical Shelters.  
AD-B046 844L

## \*RADIOGRAPHY

Investigation of Automated Evaluation of Field Weld Radiographs.  
AD-A028 605

## WELDS

The Introduction of Discontinuities in High Strength Steel Weldments.  
AD- 755 524

## \*RADOMES

Development of a Composite Material for Construction of Antenna Element Radomes.  
AD-B020 359L  
Fabrication and Testing of a Composite Material Radome.  
AD-B023 059L  
Advanced Development Tests of a Composite Material for Antenna Element Radomes.  
AD-B036 607L

## \*RECLAMATION

Technical Evaluation Study: Energy-Recovery Solid Waste Incineration to Naval Station Mayport, Florida.  
AD-A015 615

## \*RECYCLED MATERIALS

FUELS  
Use of Refuse as a Fuel at Fort Monmouth, NJ.  
AD-B003 456

## \*REFUSE COLLECTION

SUBJECT INDEX-38  
UNCLASSIFIED 099062

PRO-REF

# UNCLASSIFIED

- Improved Collection and  
Container-Washing Systems for Solid  
Waste Management at Army  
Installations.  
AD-A054 935
- Typical Contract Specifications  
for Collection of Refuse and  
Sanitary-Landfill Operations.  
AD-A061 638
- \*REINFORCED CONCRETE
  - Compression Characteristics and  
Structural Beam Design Analysis of  
Steel Fiber Reinforced Concrete.  
AD- 771 908
  - Inflation Forming of Steel Fiber-  
Reinforced Concrete Domes.  
AD-A005 046
  - Fibrous Concrete Pavement Design  
Summary.  
AD-A012 731
  - Evaluation of Alternate Wire  
Fabric Materials for Articulated  
Concrete Mattresses.  
AD-A018 951
  - An Analytical Model for Uniaxial  
Cyclic Inelastic Behavior of  
Reinforced Concrete.  
AD-A024 910
  - Chloride Sensitivity of the  
Corrosion Rate of Zinc-Coated  
Reinforcing Bars.  
AD-A030 565
  - Corrosion Behavior of Steel  
Fibrous Concrete.  
AD-A041 339
  - Evaluation of the Corrosion  
Resistance of Alternate Revetment  
Wire Fabric Materials in the Lower  
Mississippi River.  
AD-A043 558
  - Use of Fly Ash and High-Strength  
Reinforcing Bars in Military  
Construction.  
AD-A045 186
  - Steel Fibers as Web  
Reinforcement in Reinforced  
Concrete.  
AD-A056 496
  - Dynamic Response of Reinforced  
Concrete Structures.
- AD-A056 627
- FIBERS
  - Fibrous Concrete for Pavement  
Applications.  
AD- 741 357
  - Fiber Reinforced Concrete a  
General Discussion of Field  
Problems and Applications.  
AD- 741 358
- HANDBOOKS
  - Technical Information Pamphlet  
on Use of Fibrous Concrete  
(Applicability of Fibrous Concrete  
for Military Facilities).  
AD- 761 077
- IMPREGNATION
  - Polymer Impregnated Fibrous  
Cellular Concrete for BMD  
Facilities.  
AD- 767 531
- PLASTICS
  - Polymerized Lightweight  
Structural Elements.  
AD- 762 113
- STRAIN(MECHANICS)
  - CRITICAL NORMAL FRACTURE STRAIN  
OF PLAIN AND STEEL WIRE FIBROUS-  
REINFORCED CONCRETE.  
AD- 695 719
- SYMPOSIA
  - Fibrous Concrete - Construction  
Material for the Seventies (May 1-  
3, 1972).  
AD- 756 384
- \*REINFORCED PLASTICS
  - Resin Bound Aggregate Material  
Systems.  
AD-A014 141
- \*REINFORCEMENT(STRUCTURES)
  - Methods for Seismic  
Strengthening of Buildings.  
AD-A058 344
- \*REPAIR
  - Development and Evaluation of  
Repairs for EMP Leaks in Conduit  
Systems.  
AD-A011 223
  - Development of an Installation  
Surfaced Area Maintenance and  
Repair Management System.  
AD-A017 328
  - Development of a Pavement  
Maintenance Management System.  
Volume III. Maintenance and Repair  
Guidelines for Airfield Pavements.  
AD-A056 575
  - Roofing Repair Materials for  
Korean Relocatable Buildings - Test  
and Evaluation.  
AD-A085 188
- \*REPORTS
  - Automated Design and  
Construction Progress Reporting  
Procedures. Volume I.  
AD- 771 178
  - A Review and Analysis of  
Environmental Impact Assessment  
Methodologies.  
AD-A013 359
  - Analysis of Real Property  
Inventory Reporting Procedures.  
AD-A068 360
- \*RESERVOIRS
  - Design Guidelines for  
Recreational Roads.  
AD-A018 953
- \*RESISTANCE
  - Methods for Seismic  
Strengthening of Buildings.  
AD-A058 344
- \*RESOURCE MANAGEMENT
  - Data Requirements for Army Land  
Use Planning and Management.  
AD-A062 599
- \*REVEITEMENTS
  - Evaluation of Alternate Wire  
Fabric Materials for Articulated  
Concrete Mattresses.

SUBJECT INDEX-39  
UNCLASSIFIED 099062

RE1-REV



# UNCLASSIFIED

AD-A018 951  
Study of Anticulated Concrete  
Revetment Mattress: Test and  
Analysis - Results of FY 1974  
Program.  
AD-A021 774  
Study of Anticulated Concrete  
Revetment Mattress: Test and  
Analysis--Results of FY 1975  
Program.  
AD-A033 440  
Evaluation of the Corrosion  
Resistance of Alternate Revetment  
Wire Fabric Materials in the Lower  
Mississippi River.  
AD-A043 558

\*REVIEWS  
Procedures for Reviewing  
Environmental Impact Assessments  
and Statements for Construction  
Projects.  
AD-A015 020

\*RISK  
Preliminary Investigations of  
Risk Sharing in Construction  
Contracts.  
AD-A054 299

\*RISK ANALYSIS  
A Seismic Risk Simulation Model  
for Army Facilities: Phase One.  
Development of Deterministic Model.  
AD-A043 173

\*ROADS  
Design Guidelines for  
Recreational Roads.  
AD-A018 953  
Development of a Pavement  
Condition Rating Procedure for  
Roads, Streets, and Parking Lots.  
Volume I. Conditions Rating  
Procedure.  
AD-A074 170  
Development of a Pavement  
Condition Rating Procedure for  
Roads, Streets, and Parking Lots.  
Volume II. Distress Identification  
Manual.

AD-A074 171  
CONSTRUCTION  
Burma Soils. A Study of the  
Effects of Lime and Cement on Paddy  
and Laterite Material.  
AD- 720 993

PANAMA  
Stabilization of Inorganic  
Silt: Panamanian Soils.  
AD- 742 213

\*ROCK  
BONDING  
Epoxy Resin Cure Evaluation:  
Data Report.  
AD- 880 626

INDEXES  
Tentative Field Engineering  
Index for Rocks.  
AD- 751 177

\*ROCK MECHANICS  
A Systematic Determination of  
Engineering Criteria for Rock.  
AD- 777 768  
A Scanning Electron Microscope  
Investigation of Statically Loaded  
Foundation Materials.  
AD-A013 403

\*ROQFS  
Evaluation of Alternative  
Reroofing Systems.  
AD-A071 578  
Built-Up Roof Construction  
Quality Control.  
AD-A073 619  
Roofing Repair Materials for  
Korean Relocatable Buildings - Test  
and Evaluation.  
AD-A085 188

\*ROTARY WING AIRCRAFT  
Technical Background: Interim  
Criteria for Planning Rotary-Wing  
Aircraft Traffic Patterns, and  
Siting Noise-Sensitive Land Uses.  
AD-A031 449

AD-A031 450  
User Manual: Interim Procedure  
for Planning Rotary-Wing Aircraft  
Traffic Patterns and Siting Noise-  
Sensitive Land Uses.  
AD-A051 999  
Rotary-Wing Aircraft Operational  
Noise Data.  
AD-A051 999

\*RUNWAYS  
Pavement Functional Condition  
Indicators.  
AD-A007 152  
The Status of Development of a  
Maintenance Management System for  
Airfield Pavements.  
AD-A011 589  
The Effects of Gear Pattern on  
Pavement Systems Performance.  
AD-A048 250  
Development of a Pavement  
Maintenance Management System.  
Volume I. Airfield Pavement  
Condition Rating.  
AD-A048 884  
Development of a Pavement  
Maintenance Management System.  
Volume II. Airfield Pavement  
Distress Identification Manual.  
AD-A049 029  
Reliability Analysis for  
Airfield Lighting Systems.  
AD-A054 309  
Development of a Pavement  
Maintenance Management System.  
Volume V. Proposed Revision of  
Chapter 3, AFR 93-5.  
AD-A058 860  
Development of a Pavement  
Maintenance Management System.  
Volume IV. Appendices A through I.  
Maintenance and Repair Guidelines  
for Airfield Pavements.  
AD-A060 883

LOADS (FORCES)  
Small-Scale Static Load Model  
Study: Behavior of Rigid Pavement  
Loaded Near the Edge.  
AD- 742 214

SUBJECT INDEX-40  
UNCLASSIFIED 099062

REV-RUN

# UNCLASSIFIED

MAINTENANCE  
Coefficient of Linear Thermal  
Expansion of Epoxy Resin Mortars.  
AD- 742 212

PAVEMENTS  
The User Requirements for an  
Airfield Pavement System.  
AD- 753 927

An Analysis of Pickett's  
Solution to Westergaard's Equation  
for Rigid Pavements.  
AD- 755 526

Proceedings, Allerton Park  
Conference on Systems Approach to  
Airfield Pavements, 23-26 March  
1970 (National Pavement Design).  
AD- 763 212

\*SAFETY  
Probabilistic Concept for  
Gravity Dam Analysis.  
AD-A073 802

\*SALT WATER  
Cathodic Protection Design for  
Brackish Water Systems: Fresh  
Water Bayou Lock.  
AD-A054 307

\*SANDWICH PANELS  
Evaluation of Load-Bearing  
Honeycomb Core Sandwich Panels.  
AD-A033 755

UNDERGROUND STRUCTURES  
Cost Performance Analysis of  
Portland Cement Concrete-Fibrous  
Polyester Concrete Material System  
(Sandwich Panels).  
AD- 765 473

\*SANITARY ENGINEERING  
A Systems Approach to  
Construction of Recreational Area  
Facilities Volume II. Request for  
Technical Proposal and Evaluation  
Documentation.  
AD-A038 594  
Investigation of Plastic Pipe  
for Use by the Corps of Engineers.

AD-A042 313  
Simplified Sanitary Landfill  
Design and Operation Analysis.  
AD-A064 356

MILITARY FACILITIES  
An Economic Feasibility Study of  
Fayetteville, North Carolina.  
Treating Fort Bragg's Wastewater.  
AD- 758 152

TOILET FACILITIES  
Evaluation of a Field-Type  
Incinerator for Human Waste  
(Theater of Operations Sewage  
Treatment Systems).  
AD- 760 490

\*SCHEDULING  
Automated Scheduling of  
Maintenance Events: Status of  
Fitzsimons Hospital Study.  
AD- 772 896  
Construction Scheduling of AFCS  
Facilities Methodology Report.  
AD-A027 584

CONSTRUCTION  
A Data-Based Methodology for  
Specifying Construction Project  
Durations.  
AD- 767 529  
CMP Instructions,  
Specifications, and Example.  
AD- 768 098

\*SCIENTIFIC RESEARCH  
MANAGEMENT PLANNING AND CONTROL  
An Introduction to Technological  
Forecasting.  
AD- 755 523

\*SCREENS(WOVEN MATERIALS)  
Evaluation of Alternate Wire  
Fabric Materials for Articulated  
Concrete Mattresses.  
AD-A018 951

\*SCREWS  
Failure Analysis of Ozark,  
Arkansas, Power Plant Socket-Head

Cap Screws.  
AD-A029 911  
\*SCRUBBERS  
An Extended Evaluation of a  
Particulate Precipitating Heat  
Transfer Surface.  
AD- 770 395

\*SEA WATER  
Coatings and Cathodic Protection  
of Piliings in Seawater: Results of  
5-Year Exposure.  
AD-A038 832

\*SEA WATER CORROSION  
Corrosion of Steel Piliings in  
Seawater: Buzzards Bay -- 1975-  
1978.  
AD-A078 626

\*SEASONAL VARIATIONS  
Evaluation of Projects for  
Counter-Seasonality Measures.  
AD- 771 909

\*SEISMIC DATA  
Current and Tentative Seismic  
Design Provisions for Buildings:  
Preliminary Comparisons.  
AD-A075 204

\*SEISMIC WAVES  
Three-Dimensional Seismic  
Structural Analysis of Letterman  
Hospital.  
AD-A022 085  
Guidelines for Evaluating the  
Seismic Resistance of Existing  
Buildings.  
AD-A042 873

A Seismic Risk Simulation Model  
for Army Facilities: Phase One,  
Development of Deterministic Model.  
AD-A043 173  
Methods for Seismic  
Strengthening of Buildings.  
AD-A058 344

Development and Use of Seismic  
Shock Test Criteria for Essential  
Equipment in Critical Facilities.

SUBJECT INDEX-41  
UNCLASSIFIED 099062

SAF-SE1

# UNCLASSIFIED

AD-A068 295

## \*SEISMOLOGY

Guidelines for Developing Design Earthquake Response Spectra.  
AD-A012 728

## \*SEWAGE TREATMENT

Tertiary Treatment of Wastewater Using a Rotating Biological Contactor System.  
AD-A082 502

## \*SHEAR STRENGTH

The Effects of Clustered Porosity on the Shear Strength of A 514F Transverse Fillet Welds.  
AD-A034 662

## \*SHELTERS

Inflation/Foam/Shotcrete System for Rapid Shelter Construction.  
AD-A040 789  
Alternative Theater of Operations Building Systems.  
AD-A042 312  
Feasibility of Structural Foam/Concrete Building for Theater of Operations Use.  
AD-A053 272  
Rapid Construction for Hardening Above-Ground Facilities to Small Arms Fire.  
AD-A054 306  
Material, Design, and Construction Guidelines for Vertical Construction in Desert and Tropical Regions.  
AD-A057 957  
Inflation/Foam/Shotcrete System for Rapid Construction of Circular Arches.  
AD-A069 878  
Selection of Recommended Electromagnetic Interference/Radio Frequency Interference Shielding Effectiveness Test Procedures for Military Tactical Shelters.  
AD-B046 844L

## \*SHIELDING

Radio Frequency Shielding Tests of System Technology Test Facility at Meck Island, Marshall Islands.  
AD-A041 450

## \*SHIPPING CONTAINERS

Shipping Containers as Structural System\*.  
AD-A042 179

## \*SHOCK ABSORBERS

Liquid-Spring Shock Isolator Modeling.  
AD-A044 993

## \*SHOWER FACILITIES

Problems, Repair Methods, Materials, and Equipment.  
AD-A009 667

## \*SITE SELECTION

A Site Selection Procedure for Military Family Housing.  
AD-A028 387  
A Systems Approach to Construction of Recreational Area Facilities Volume II. Request for Technical Proposal and Evaluation Documentation.  
AD-A038 594

## \*SKIDDING

Pavement Functional Condition Indicators.  
AD-A007 152  
Inspection of Pavement Grooving.  
AD- 757 208  
Construction Scheduling of AFCS Facilities--Skill Report.  
AD-A028 380  
Predicting Noise Impact in the Vicinity of Small-Arms Ranges.  
AD-A062 718

## \*SMALL ARMS

Predicting Noise Impact in the Vicinity of Small-Arms Ranges.  
AD-A062 718

## \*SOCIOLOGY

Tract Level Socioeconomic Data System (TRACT) User Manual.  
AD-A058 825

## \*SOIL MECHANICS

Structures on Expansive Soils.  
AD- 779 510

## \*COMPRESSIVE PROPERTIES

Stabilization of Contaminated Clays.  
AD- 745 902

## \*VIETNAM

Stabilization Studies of Southeast Asian Soils: Vietnam.  
AD- 745 901

## \*SOIL STABILIZATION

The Soil-Polymer System.  
AD- 775 812  
Load-Deflection Behavior of Lime-Stabilized Layers.  
AD-A006 015

## \*SOILS

BURMA  
Burma Soils. A Study of the Effects of Lime and Cement on Paddy and Laterite Material.  
AD- 720 993

## \*STABILIZATION

Strength and Durability of Stabilized Layers under Existing Pavements.  
AD- 715 400  
Stabilization Studies: Turkish Soils.  
AD- 729 661  
Stabilization of Inorganic Silts: Panamanian Soils.  
AD- 742 213  
Stabilization Studies: Afghanistan Soils.  
AD- 745 408  
Soil Stabilization Investigation for 155 mm Towed Howitzer Firing Pads.  
AD- 766 299  
Stabilization for Pavements.

SUBJECT INDEX-42  
UNCLASSIFIED 099062

SEE-501

# UNCLASSIFIED

AD- 892 386L

## \*SOLAR COLLECTORS

Predicting the Performance of Solar Energy Systems.

AD-A035 608

Market Evaluation Study: Solar Domestic Water Heaters for DOD Barracks.

AD-A036 479

## \*SOLAR ENERGY

Method for Estimating Solar Heating and Cooling System Performance.

AD-A026 041

Interim Feasibility Assessment Method for Solar Heating and Cooling of Army Buildings.

AD-A026 588

Predicting the Performance of Solar Energy Systems.

AD-A035 608

A Comparison of the Actual and Predicted Performance of a Solar Assisted Space Heating System.

AD-A056 452

Design of Solar Heating and Cooling Systems.

AD-A062 719

Investigation of Methods to Predict Thermal Stratification and Its Effect on Solar Energy System Performance.

AD-A086 051

## \*SOLAR HEATING

Method for Estimating Solar Heating and Cooling System Performance.

AD-A026 041

Interim Feasibility Assessment Method for Solar Heating and Cooling of Army Buildings.

AD-A026 588

Market Evaluation Study: Solar Domestic Water Heaters for DOD Barracks.

AD-A036 479

Market Evaluation Study: Solar Heating and Domestic Hot Water

Heating in DOD Buildings.

AD-A042 178

A Comparison of the Actual and Predicted Performance of a Solar Assisted Space Heating System.

AD-A056 452

Design of Solar Heating and Cooling Systems.

AD-A062 719

The Performance of an Experimental Solar Heating System.

AD-A066 699

## \*SOLAR RADIATION

Investigation of the Interrelationship between Direct, Diffuse, and Total Solar Radiation.

AD-A072 986

## \*SOLDIERS

Survey of Soldiers' Attitudes Toward Troop Housing. Volume I: Summary Report.

AD-A009 700

Survey of Soldiers' Attitudes Toward Troop Housing. Volume II.

AD-A009 701

## \*SOLID WASTE DISPOSAL

Technical Evaluation Study. Solid Waste Generation and Disposal, Watervliet Arsenal, Watervliet, N.Y.

AD- 772 893

Sanitary Landfill.

AD- 773 714

Technical Evaluation Study Solid Waste Generation and Disposal Red River Army Depot, Texarkana, Texas.

AD- 779 509

## \*SOLID WASTES

Technical Evaluation Study: Energy-Recovery Solid Waste Incineration to Naval Station Mayport, Florida.

AD-A015 615

Technical Evaluation Study: Solid Waste Heat Reclamation at Philadelphia Naval Shipyard, Philadelphia, Pa.

AD-A015 616

Installation Solid Waste Survey Guidelines.

AD-A018 879

Technical Evaluation Study: Solid Waste as a Fuel at Ft. Bragg, N. C.

AD-A034 416

Design Features of Package Incinerator Systems.

AD-A040 743

Recovery of Energy from Solid Waste at Army Installations.

AD-A044 814

Cost of Recycling Waste Material from Family Housing.

AD-A045 421

Field Evaluation of the Modular Augered-Bed Heat-Recovery Solid Waste Incinerator.

AD-A054 707

Improved Collection and Container-Washing Systems for Solid Waste Management at Army Installations.

AD-A054 935

Energy Recovery from Solid Waste in the Charleston, SC, SMSA.

AD-A056 196

Typical Contract Specifications for Collection of Refuse and Sanitary-Landfill Operations.

AD-A061 638

Technical Evaluation Study: Energy Recovery from Solid Waste at Fort Dix, NJ and Nearby Civilian Communities.

AD-A062 653

Thermogravimetric Analysis of Solid Refuse-Derived Fuels and Coal.

AD-A067 829

Production and Use of Densified Refuse-Derived Fuel (DRDF) in Military Central Heating and Power Plants.

AD-A082 773

WASTE DISPOSAL Use of Refuse as a Fuel at Fort Monmouth, NJ.

SUBJECT INDEX-43  
UNCLASSIFIED 099062

SOL-SOL

# UNCLASSIFIED

AD-R003 456

## \*SPECIALISTS

Directory of Experts on  
Organization and Management of  
Construction (1977), CIB W-65  
Commission.  
AD-A033 530

## \*SPECIFICATIONS

Computer-Based Specifications:  
Cost Analysis Study.  
AD-786 551  
Specification Preparation  
Methods--State of the Art.  
AD-A016 919  
Review of Formulation and  
Testing Procedures for Coal Tar  
Epoxy (SSPC Paint 16-68T).  
AD-A030 566  
Effective Use of Systems  
Building Technology: Open Systems  
Catalog. Volume II. Prototype  
Performance Specifications.  
AD-A040 757  
Construction Specification  
Preparation within the EDITSPEC  
system.  
AD-A045 183

## \*SPRAYERS

Spray Painting: Equipment and  
Techniques for Application of Vinyl  
Paints.  
AD-A039 029

## \*SPRAYS

Spray Painting: Equipment and  
Techniques for Application of Vinyl  
Paints.  
AD-A039 029

## \*SPRINGS

Liquid-Spring Shock Isolator  
Modeling.  
AD-A044 993

## \*STAINLESS STEEL

Fracture Characteristics of Two  
High-Strength, Low-Alloy and Two  
Stainless Steels.

AD-A035 029

## \*STANDARDS

Recommended Interface Standards  
for an Army Standard Energy  
Monitoring and Control System.  
AD-A063 936

## \*STEEL

Directional Transformation in  
Steel--Texture Behavior and  
Martensite Morphology.  
AD-771 906  
A New Look at Structural Energy  
Dissipation.  
AD-780 801  
Cyclic Mechanical Tests and an  
Appropriate Analytical Stress-  
Strain Model for A36 Steel.  
AD-780 802  
Effects of Cluster Porosity on  
the Tensile Properties of Butt-  
Weldments in T-1 Steel.  
AD-A004 001  
Fibrous Concrete Pavement Design  
Summary.  
AD-A012 731  
Fatigue Failure of Hydrogen-  
Embrittled High-Strength Steels.  
AD-A013 380  
Bonding between Cement Hydrates  
and Steel.  
AD-A021 651  
First Annual Inspection of  
Buzzards Bay Pillings.  
AD-A024 381  
Initial Studies of In-Sem  
Fracture Using a Tensile Stage.  
AD-A025 203  
Maintenance Painting of Steel  
Structures.  
AD-A030 397  
Chloride Sensitivity of the  
Corrosion Rate of Zinc-Coated  
Reinforcing Bars.  
AD-A030 565  
The Effects of Clustered  
Porosity on the Shear Strength of A  
514F Transverse Fillet Welds.  
AD-A034 662  
The Effects of Base Metal Notch

Orientation and Acuity and Weld  
Porosity on the Dynamic Tear  
Toughness of A514F Steel.  
AD-A037 046  
Effect of Lack of Penetration on  
Fatigue Resistance of High-Strength  
Structural Steel Welds.  
AD-A037 047  
Corrosion Behavior of Steel  
Fibrous Concrete.  
AD-A041 339  
The Effects of Weld Porosity on  
the Fracture Toughness of A514F  
Steel.  
AD-A045 185  
Use of Fly Ash and High-Strength  
Reinforcing Bars in Military  
Construction.  
AD-A045 186  
Fracture Characteristics of ASTM  
A-607 Pipe-Line Steel, ASTM A-516  
Structural Steel, and ASTM B-209,  
Aluminum Alloys 5083 and 6061.  
AD-A055 520  
Steel Fibers as Web  
Reinforcement in Reinforced  
Concrete.  
AD-A056 496  
Determination of the Effect of  
Current and Travel Speed of  
Shielded Metal-Arc Welding on the  
Mechanical Properties of A36, A516,  
and A514 Steels.  
AD-A063 213

## JOINTS

Investigation of Techniques for  
Butt Splicing Rebars.  
AD-742 781

## PHASE STUDIES

Feasibility of Producing  
Directionally Transformed  
Martensite in Steel.  
AD-729 660  
Directional Transformations in  
Steel - Alloy Development.  
AD-748 408

## \*STOCHASTIC PROCESSES

Modifications Processing

SUBJECT INDEX-44

UNCLASSIFIED 099062

SPE-STO

# UNCLASSIFIED

- Procedures: A Generalized Stochastic Network Model.  
AD-A043 717
- \*STORABLE ROCKET PROPELLANTS  
The Feasibility of a Storable Propellant Turbine, High-Speed Alternator as a Compact Short-Life Power System for Hardened Ballistic Missile Defense (BMD) Installations.  
AD-A024 786
- \*STRATIFICATION  
Investigation of Methods to Predict Thermal Stratification and Its Effect on Solar Energy System Performance.  
AD-A086 051
- \*STRENGTH(GENERAL)  
Durability and Fire-Spread Aspects of Plastic Pipe Systems.  
AD-A073 031
- \*STRESS CORROSION  
An Investigation of the Susceptibility of Post-Tensioning Cables to Stress-Corrosion Cracking.  
AD-A035 258
- \*STRESS STRAIN RELATIONS  
Cyclic Mechanical Tests and an Appropriate Analytical Stress-Strain Model for A36 Steel.  
AD- 780 802
- Isotropic-Kinematic Hardening Model for Elastic-Plastic Cyclic Structural Analysis.  
AD-A014 945
- \*STRESSES  
A Generalized Kinematic Hardening Theory,  
AD- 785 652
- PHOTOELASTICITY  
Feasibility of Applying Fringe Multiplication Techniques to Stress Analysis in Three Dimensions.
- AD- 751 172
- \*STRUCTURAL ANALYSIS  
Ballistics Tests of Fibrous Concrete Dome and Plate Specimens.  
AD-A025 209
- A Plasticity Formulation for Cyclic Inelastic Structural Analysis.  
AD-A036 473
- \*STRUCTURAL ENGINEERING  
Shipping Containers as Structural Systems.  
AD-A042 179
- Alternative Theater of Operations Building Systems.  
AD-A042 312
- Dynamic Response of Reinforced Concrete Structures.  
AD-A056 627
- \*STRUCTURAL MEMBERS  
The Design of a Plastic Structural System (ILIR),  
AD-A011 224
- Prefabricated Expandable Foam/Wood Structures for Theater of Operations.  
AD-A044 991
- REINFORCED CONCRETE  
Polymerized Lightweight Structural Elements.  
AD- 762 113
- \*STRUCTURAL PROPERTIES  
Isotropic-Kinematic Hardening Model for Elastic-Plastic Cyclic Structural Analysis.  
AD-A014 945
- Development of a Pavement Condition Index for Roads and Streets.  
AD-A057 148
- \*STRUCTURAL RESPONSE  
Guidelines for Evaluating the Seismic Resistance of Existing Buildings.  
AD-A042 873
- Equivalent Viscous Damping of Elasto-Plastic Systems under Sinusoidal Loading.  
AD-A057 225
- \*STRUCTURAL STEEL  
Fracture Characteristics of Structural Steels and Weldments.  
AD-A019 930
- Review of the Weldability of Construction Materials.  
AD-A027 383
- Fracture Characteristics of Two High-Strength, Low-Alloy and Two Stainless Steels.  
AD-A035 629
- A Unified Approach for Modeling Inelastic Behavior of Structural Metals under Complex Cyclic Loadings.  
AD-A040 741
- Fracture Characteristics of Structural Steels: Reference Manual.  
AD-A072 054
- \*STRUCTURES  
Electromagnetic Shielding of Structures.  
AD- 776 367
- Structures on Expansive Soils.  
AD- 779 510
- Numerical Solution Schemes for Highly Nonlinear Static Structural Behavior.  
AD-A016 985
- Maintenance Painting of Steel Structures.  
AD-A030 397
- \*SUBROUTINES  
The Building Loads Analysis System Thermodynamics (BLAST) program, Version 2.0: Input Booklet.  
AD-A072 435
- \*SULFUR  
Evaluation of Alternatives for Restoring the South Boiler House at Joliet AAP to High-Sulfur-Coal

SUBJECT INDEX-45  
UNCLASSIFIED 099062

STO-SUL

# UNCLASSIFIED

- Burning Capability.  
AD-A069 374
- \*SURFACE FINISHING  
An Investigation of Techniques  
for Achieving Exposed Aggregate  
Surfaces for Site-Cast Concrete.  
AD-A012 110
- \*SURFACE TO SURFACE MISSILES  
Foam Overhead Cover Support  
(FOCOS) System for Dismounted and  
Mounted TOW Positions.  
AD-A075 746
- \*SURFACE WATERS  
Basic Analytical Model for  
Environmental Impact Assessment of  
Surface Water Resources--DOSAG User  
Manual.  
AD-A069 977
- \*SURVEYS  
Water/Wastewater Survey  
Guidelines.  
AD-A033 223  
User Evaluation of CERL Air,  
Water/Wastewater, and Solid Waste  
Survey Guidelines.  
AD-A061 123  
Guidelines for Terrestrial  
Ecosystem Survey.  
AD-A086 526
- \*SYMPOSIA  
Proceedings of the CIB W-65  
Working Commission on Organization  
and Management of Construction,  
Volume III. International Council  
for Building Research and  
Documentation and Dissemination.  
AD-A051 438
- \*SYSTEMS APPROACH  
Systems Approach to Life-Cycle  
Design of Pavements. Volume III.  
LIFE2 Program Listing.  
AD-A064 698  
Systems Approach to Life-Cycle  
Design of Pavements. Volume II.  
LIFE2 System Documentation.
- AD-A067 691
- \*SYSTEMS ENGINEERING  
An Interim Guide to  
Industrialized Building Systems.  
AD-A034 131
- \*TECHNOLOGY  
Significance Ranking of Changes  
in the Building Industry.  
AD-A003 991
- \*TECHNOLOGY TRANSFER  
Blocks to Effective Technology  
Transfer in Construction.  
AD-A069 586
- \*TERMINAL FLIGHT FACILITIES  
Development of a Standard Data  
Base and Computer Simulation Model  
for an Air Cargo Terminal.  
AD- 753 925
- CONTROL SYSTEMS  
Activity Networks to Model  
Transportation Systems Subject to  
Facility Constraints.  
AD- 757 628  
A Stochastic Network to Model  
Air Cargo Terminals.  
AD- 757 629
- \*TEST AND EVALUATION  
Evaluation of Instrumentation  
for Testing Large Generator Sets.  
AD-A050 169
- \*TEST EQUIPMENT  
LOADS(FORCES)  
Non-Destructive Testing of  
Concrete Pavements: Equipment  
Evaluation.  
AD- 907 397L
- \*TEST FACILITIES  
Radio Frequency Shielding Tests  
of System Technology Test Facility  
at Meck Island, Marshall Islands.  
AD-A041 450
- \*TEST METHODS  
Rapid Testing of Fresh Concrete.  
AD-A009 702  
Development and Use of Seismic  
Shock Test Criteria for Essential  
Equipment in Critical Facilities.  
AD-A068 295
- \*TEXAS  
Technical Evaluation Study Solid  
Waste Generation and Disposal Red  
River Army Depot, Texarkana, Texas.  
AD- 779 509
- \*THEATER LEVEL OPERATIONS  
Alternative Theater of  
Operations Building Systems.  
AD-A042 312
- \*THERMAL CONDUCTIVITY  
Investigation of Methods to  
Predict Thermal Stratification and  
Its Effect on Solar Energy System  
Performance.  
AD-A086 051
- \*THERMAL INSULATION  
EXPANDED PLASTICS  
A Feasibility Study on the Use  
of Foam-in-Place Urethane  
Insulation in Masonry Cavity Walls.  
AD- 728 169
- \*THERMODYNAMICS  
Use of the Building Loads  
Analysis and System Thermodynamics  
Program to Perform Total Energy  
System Analysis.  
AD-A040 744
- \*THERMOGRAVIMETRIC ANALYSIS  
Thermogravimetric Analysis of  
Solid Refuse-Derived Fuels and  
Coals.  
AD-A067 829
- \*THERMOSETTING PLASTICS  
CONCRETE  
Development and Evaluation of a  
High-Strength Polyester Synthetic  
Concrete.

SUBJECT INDEX-46  
UNCLASSIFIED 099062

SUB-TME

# UNCLASSIFIED

AD-967 3741

## •TIME STUDIES CONSTRUCTION

Construction Time Overruns.

AD-766 725

## •TNT

Migration of Explosives and  
Chlorinated Pesticides in a  
Simulated Sanitary Landfill

AD-A030 453

## •TOILET FACILITIES

A System Approach to  
Construction of Rural Toilet Area  
Facilities: A Preliminary Report for  
Technical Assistance and Evaluation  
Documentation

AD-A034 594

A System Approach to  
Construction of Rural Toilet Area  
Facilities: A Preliminary Report for  
Technical Assistance and Evaluation  
Documentation

AD-A034 363

## SANITARY ENGINEERING

Evaluation of a New Toilet  
Facility in a Rural Area  
Construction of Sanitary Toilets  
in Rural Areas

AD-A034 440

## •TOPOGRAPHIC MAPS

A System Approach to  
Construction of Rural Toilet Area  
Facilities: A Preliminary Report for  
Technical Assistance and Evaluation  
Documentation

AD-A034 440

## •TRANSPORTATION

A System Approach to  
Construction of Rural Toilet Area  
Facilities: A Preliminary Report for  
Technical Assistance and Evaluation  
Documentation

AD-A034 440

## •TRANSPORTATION

A System Approach to  
Construction of Rural Toilet Area  
Facilities: A Preliminary Report for  
Technical Assistance and Evaluation  
Documentation

AD-A032 126

## •TREES

Construction of Rural Toilet Area  
Facilities: A Preliminary Report for  
Technical Assistance and Evaluation  
Documentation

AD-A032 126

## •TRUCKING

A System Approach to  
Construction of Rural Toilet Area  
Facilities: A Preliminary Report for  
Technical Assistance and Evaluation  
Documentation

AD-A032 126

## •TRUCKING

A System Approach to  
Construction of Rural Toilet Area  
Facilities: A Preliminary Report for  
Technical Assistance and Evaluation  
Documentation

AD-A032 126

## •TRUCKING

A System Approach to  
Construction of Rural Toilet Area  
Facilities: A Preliminary Report for  
Technical Assistance and Evaluation  
Documentation

AD-A032 126

## •TRUCKING

A System Approach to  
Construction of Rural Toilet Area  
Facilities: A Preliminary Report for  
Technical Assistance and Evaluation  
Documentation

AD-A032 126

## •TRUCKING

A System Approach to  
Construction of Rural Toilet Area  
Facilities: A Preliminary Report for  
Technical Assistance and Evaluation  
Documentation

AD-A032 126

## •TRUCKING

A System Approach to  
Construction of Rural Toilet Area  
Facilities: A Preliminary Report for  
Technical Assistance and Evaluation  
Documentation

AD-A032 126

## •TRUCKING

A System Approach to  
Construction of Rural Toilet Area  
Facilities: A Preliminary Report for  
Technical Assistance and Evaluation  
Documentation

AD-A032 126

SANDWICH PANELS

Construction of Rural Toilet Area  
Facilities: A Preliminary Report for  
Technical Assistance and Evaluation  
Documentation

AD-766 413

## •STREETS

A System Approach to  
Construction of Rural Toilet Area  
Facilities: A Preliminary Report for  
Technical Assistance and Evaluation  
Documentation

AD-766 413

## •STREETS

A System Approach to  
Construction of Rural Toilet Area  
Facilities: A Preliminary Report for  
Technical Assistance and Evaluation  
Documentation

AD-766 413

## •STREETS

A System Approach to  
Construction of Rural Toilet Area  
Facilities: A Preliminary Report for  
Technical Assistance and Evaluation  
Documentation

AD-766 413

## •STREETS

A System Approach to  
Construction of Rural Toilet Area  
Facilities: A Preliminary Report for  
Technical Assistance and Evaluation  
Documentation

AD-766 413

## •STREETS

A System Approach to  
Construction of Rural Toilet Area  
Facilities: A Preliminary Report for  
Technical Assistance and Evaluation  
Documentation

AD-766 413

## •STREETS

A System Approach to  
Construction of Rural Toilet Area  
Facilities: A Preliminary Report for  
Technical Assistance and Evaluation  
Documentation

AD-766 413

## •STREETS

A System Approach to  
Construction of Rural Toilet Area  
Facilities: A Preliminary Report for  
Technical Assistance and Evaluation  
Documentation

AD-766 413



AD-A042 124  
Title: Waste Management  
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Subject: [illegible]

AD-A042 125  
Title: Waste Management  
Author: [illegible]  
Subject: [illegible]

AD-A042 126  
Title: Waste Management  
Author: [illegible]  
Subject: [illegible]

AD-A042 127  
Title: Waste Management  
Author: [illegible]  
Subject: [illegible]

AD-A042 128  
Title: Waste Management  
Author: [illegible]  
Subject: [illegible]

AD-A042 129  
Title: Waste Management  
Author: [illegible]  
Subject: [illegible]

AD-A042 130  
Title: Waste Management  
Author: [illegible]  
Subject: [illegible]

AD-A042 131  
Title: Waste Management  
Author: [illegible]  
Subject: [illegible]

AD-A042 132  
Title: Waste Management  
Author: [illegible]  
Subject: [illegible]

AD-A042 133  
Title: Waste Management  
Author: [illegible]  
Subject: [illegible]

AD-A042 134  
Title: Waste Management  
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Subject: [illegible]

AD-A042 135  
Title: Waste Management  
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AD-A042 136  
Title: Waste Management  
Author: [illegible]  
Subject: [illegible]

AD-A042 137  
Title: Waste Management  
Author: [illegible]  
Subject: [illegible]

AD-A042 138  
Title: Waste Management  
Author: [illegible]  
Subject: [illegible]

AD-A042 139  
Title: Waste Management  
Author: [illegible]  
Subject: [illegible]

AD-A042 140  
Title: Waste Management  
Author: [illegible]  
Subject: [illegible]

AD-A042 141  
Title: Waste Management  
Author: [illegible]  
Subject: [illegible]

AD-A042 142  
Title: Waste Management  
Author: [illegible]  
Subject: [illegible]

AD-A042 143  
Title: Waste Management  
Author: [illegible]  
Subject: [illegible]

AD-A042 144  
Title: Waste Management  
Author: [illegible]  
Subject: [illegible]

AD-A042 145  
Title: Waste Management  
Author: [illegible]  
Subject: [illegible]

AD-A042 146  
Title: Waste Management  
Author: [illegible]  
Subject: [illegible]

AD-A042 147  
Title: Waste Management  
Author: [illegible]  
Subject: [illegible]

AD-A042 148  
Title: Waste Management  
Author: [illegible]  
Subject: [illegible]

AD-A042 149  
Title: Waste Management  
Author: [illegible]  
Subject: [illegible]

SUBJECT INDEX-4H  
UNCLASSIFIED 094062

VIB-WAS

WASTES (INDUSTRIAL)

# UNCLASSIFIED

Hazardous Waste Surveys of Two Army Installations and an Army Hospital.  
AD-A044 260

•WASTESANITARY ENGINEERING)  
Development of Vault Toilet Waste Treatment Systems.  
AD-A056 831

Hazardous Waste Surveys of Two Army Installations and an Army Hospital.  
AD-A098 260

•WATER  
Operations Guide - Water and Cement Content of Fresh Concrete.  
AD-A022 697

•WATER PIPES  
HOT WATER  
Analysis of Leaks in the High Temperature Hot Water Piping System at Fort Gordon, GA.  
AD-B009 462L

PLASTICS  
Theater of Operations Water Supply--Feasibility of Manufacturing and Using Plastic Pipe in the Theater of Operations.  
AD- 769 600

•WATER POLLUTION  
Technical Evaluation Study of the Consolidated Field Maintenance Facility at Fort Bragg, N.C.  
AD- 772 894

Water/Wastewater Survey Guidelines.  
AD-A033 223

Pollution Estimation Factors.  
AD-A033 753

Concept Definition for the Problems Data Base Component of the Water Pollution Abatement Subsystem of the Pollution Abatement Management System (PAMS).  
AD-A072 397

•WATER QUALITY

Water Quality Data for Army Military Installations.  
AD-A067 253

•WATER SUPPLIES  
Water Usage Profile -- Fort Carson, CO.  
AD-A053 227

•WATER TREATMENT  
Selection of Cooling Water Treatment at Military Installations to Prevent Scaling and Corrosion.  
AD-A087 246

•WATERPROOFING  
Waterproofing Materials for Prevention of Windblown Rain Penetration through Masonry Walls.  
AD-A008 997  
Evaluation of Bentonite Clay for Waterproofing Foundation Walls at Fort Gordon, GA.  
AD-A011 180

•WATERWAYS  
Failure Analysis of Tainter Gate Cable-Adjusting Bolts.  
AD-A008 996

•WAVE PROPAGATION  
The Statistics of Amplitude and Spectrum of Blasts Propagated in the Atmosphere. Volume I.  
AD-A033 475

•WEATHERPROOFING  
Investigation of Materials for Waterproofing Leaky Concrete Ammunition-Storage Bunkers from the Inside.  
AD-A064 731

•WELDABILITY  
Review of the Weldability of Construction Materials.  
AD-A027 383

•WELOED JOINTS  
RFI Shielding Effectiveness of Steel Sheets with Partly Welded

Seams.  
AD-A026 043

LEAKAGE (FLUID)  
Analysis of Leaks in the High Temperature Hot Water Piping System at Fort Gordon, GA.  
AD-B009 462L

•WELDING  
Development of a Weld Quality Monitor.  
AD-A027 644

ELDMENTS  
Effects of Cluster Porosity on the Tensile Properties of Butt-Weldments in T-1 Steel.  
AD-A004 001  
Fracture Characteristics of Structural Steels and Weldments.  
AD-A019 930  
The Effects of Clustered Porosity on the Shear Strength of A514F Transverse Fillet Welds.  
AD-A034 662  
Fracture Characteristics of Structural Steels: Reference Manual.  
AD-A072 054

•WELDS  
The Effect of Weld Defects on RFI Shielding Effectiveness.  
AD- 773 716

Multiple Connectivity and the J Integral of Fracture Mechanics.  
AD- 777 544

RFI Shielding Effectiveness of Steel Sheets with Partly Welded Seams.  
AD-A019 931

Investigation of Automated Evaluation of Field Weld Radiographs.  
AD-A028 605

The Effects of Base Metal Notch Orientation and Acuity and Weld Porosity on the Dynamic Tear Toughness of A514F Steel.  
AD-A037 046

SUBJECT INDEX-49  
UNCLASSIFIED 099062

WAS-WEL

UNCLASSIFIED

Effect of Lack of Penetration on  
Fatigue Resistance of High-Strength  
Structural Steel Welds.  
AD-A037 047

The Effects of Weld Porosity on  
the Fracture Toughness of A514F  
Steel.  
AD-A045 185

Nondestructive Testing for Field  
Welds: Real Time Weld Quality  
Monitor.  
AD-A058 129

**RADIOGRAPHY**

The Examination of  
Discontinuities in Welds by  
Stereoradiography.  
AD- 749 459

The Introduction of  
Discontinuities in High Strength  
Steel Weldments.  
AD- 755 524

**\*WINDOWS**

Investigation of Reflective  
Solar Control Films for Windows.  
AD-A056 620

**\*WIRE**

Study of Articulated Concrete  
Revetment Mattress: Test and  
Analysis--Results of FY 1975  
Program.  
AD-A033 440

Evaluation of the Corrosion  
Resistance of Alternate Revetment  
Wire Fabric Materials in the Lower  
Mississippi River.  
AD-A043 558

**\*WOOD**

Wood Design Parameters for  
Theater of Operations Applications.  
AD- 780 800

Field Experiment on a  
Prefabricated Expandable Foam/Wood  
Structure.  
AD-A032 726

Prefabricated Expandable  
Foam/Wood Structures for Theater of  
Operations.

AD-A014 991

Investigation of Techniques for  
the Rapid Preparation of Painted  
Wood Surfaces.

AD-A064 813

A Family of Components for the  
Wood Panelized Prefabricated  
Building System.

AD-A065 659

Densified Biomass as an  
Alternative Army Heating and Power  
Plant Fuel.

AD-A083 317

**\*ZINC COATINGS**

Chloride Sensitivity of the  
Corrosion Rate of Zinc-Coated  
Reinforcing Bars.

AD-A030 565

SUBJECT INDEX-50  
UNCLASSIFIED 099062

WIN-ZIN

# UNCLASSIFIED

## PERSONAL AUTHOR INDEX

- ABE, CLIFFORD \* \* \*  
The Job Activities Description  
(JAD) Questionnaire: An Analysis of  
Time Spent on and Importance of  
Managerial Duties.  
AD-A074 175
- \*ADELMAN, J. \* \* \*  
Investigation of RF Coupling and  
Radiation Leakage Parameters of  
Some Typical Junction Box Circuitry  
Configurations.  
AD-A023 596
- ADIGUZEL, RAHIM ILKER \* \* \*  
Profit Primer: An Evaluation of  
Alternate Profit Determination  
Methods.  
AD-A066 112
- ALESZKA, J. \* \* \*  
Fatigue Failure of Hydrogen-  
Embrittled High-Strength Steels.  
AD-A013 380
- \* \* \*  
Fracture Characteristics of  
Structural Steels and Weldments.  
AD-A019 930
- \* \* \*  
Fracture Characteristics of  
Structural Steels: Reference  
Manual.  
AD-A072 054
- \*ALESZKA, JAMES \* \* \*  
An Evaluation of the Fracture of  
Plain Concrete, Fibrous Concrete,  
and Mortar Using the Scanning  
Electron Microscope.  
AD-A007 742
- \* \* \*  
Failure Analysis of Tainter Gate  
Cable-Adjusting Bolts.  
AD-A008 996
- \* \* \*  
Evaluation of Alternate Wire Fabric
- Materials for Articulated Concrete  
Mattresses.  
AD-A018 951
- \* \* \*  
Initial Studies of In-Sem Fracture  
Using a Tensile Stage.  
AD-A025 203
- ALESZKA, JAMES C. \* \* \*  
A Scanning Electron Microscope  
Investigation of Statically Loaded  
Foundation Materials.  
AD-A013 403
- ALGERMISSEN, S. T. \* \* \*  
Guidelines for Developing Design  
Earthquake Response Spectra.  
AD-A012 728
- \*ALLEN, JOHN J. \* \* \*  
The effects of Stress History on  
the Resilient Response of Soils.  
AD- 762 194
- \*ALTHEIDE, C. P. \* \* \*  
Analysis of Real Property Inventory  
Reporting Procedures.  
AD-A068 360
- \*ALTHEIDE, CARL P. \* \* \*  
Real Estate Model of Activity  
Performance (REMAP) User's Manual.  
AD-A057 146
- \* \* \*  
Real Estate Organization Analysis  
Using the Real Estate Model of  
Activity Performance (REMAP)  
Evaluation Procedures.  
AD-A057 147
- \* \* \*  
Analysis of Real Estate Status  
Reporting Procedures.  
AD-A062 720
- ANDERSON, J. ROBERT \* \* \*  
Data Requirements for Army Land Use  
Planning and Management.  
AD-A062 599
- ANDERSON, M. L. \* \* \*  
The Economic Impact Forecast  
System: Description and User  
Instructions.  
AD-A027 139
- ANG, A. H-S. \* \* \*  
Design Criteria for Theater of  
Operations Steel Highway Bridges,  
Volume I.  
AD-A035 763
- \* \* \*  
Design Criteria for Theater of  
Operations Steel Highway Bridges,  
Volume II. Appendices A-I.  
AD-A035 779
- \*AUFMUTH, R. E. \* \* \*  
Evaluation of Lunar Drilling  
Technology for Terrestrial  
Applications -- Field Study.  
AD- 781 944
- \* \* \*  
Evaluation of Lunar Drilling  
Technology for Terrestrial  
Applications.  
AD- 782 914
- \* \* \*  
Evaluation of Lunar Drilling  
Technology for Terrestrial  
Applications. Diamond Drill Bit  
Evaluation.  
AD-A013 387
- \*AUFMUTH, RAYMOND E. \* \* \*  
Strength and Durability of  
Stabilized Layers under Existing  
Pavements.  
AD- 715 400
- \* \* \*  
Burma Soils. A Study of the  
Effects of Lime and Cement on Paddy  
and Laterite Material.

PERSONAL AUTHOR INDEX-1  
UNCLASSIFIED 099062

# UNCLASSIFIED

- AD- 720 993      \* \* \*  
Stabilization Studies: Turkish  
Soils.
- AD- 729 661      \* \* \*  
Stabilization of Inorganic Silts:  
Panamanian Soils.
- AD- 742 213      \* \* \*  
Stabilization Studies: Afghanistan  
Soils.
- AD- 745 408      \* \* \*  
Stabilization Studies of Southeast  
Asian Soils: Vietnam.
- AD- 745 901      \* \* \*  
Stabilization of Contaminated  
Clays.
- AD- 745 902      \* \* \*  
Tentative Field Engineering Index  
for Rocks.
- AD- 751 177      \* \* \*  
The Soil-Polymer System.
- AD- 775 812      \* \* \*  
A Systematic Determination of  
Engineering Criteria for Rock.
- AD- 777 768      \* \* \*  
A Scanning Electron Microscope  
Investigation of Statically Loaded  
Foundation Materials.
- AD-A013 403      \* \* \*  
\*AVERBUCH, A.      \* \* \*  
Noise Levels in U.S. Army Corps of  
Engineers Powerhouses.
- AD-A058 545      \* \* \*  
AVERBUCH, A. J.      \* \* \*  
Analysis of Environmental Noise  
Monitors.
- AD-A040 005      \* \* \*  
True-Integrating Environmental
- Noise Monitor and Sound Exposure  
Level Meter. Volume I. User's  
Guide.  
AD-A060 958      \* \* \*  
True-Integrating Environmental  
Noise Monitor and Sound-Exposure  
Level Meter. Volume III.  
Microprocessor Program and Data  
Interface Description.  
AD-A083 320      \* \* \*  
True-Integrating Environmental  
Noise Monitor and Sound-Exposure  
Level Meter. Volume IV. Mechanical  
Construction and Electrical Check  
Out.  
AD-A083 321      \* \* \*  
\*AVERBUCH, AARON J.      \* \* \*  
True-Integrating Environmental  
Noise Monitor and Sound Exposure  
Level Meter. Volume II. Wiring and  
Parts Lists. Parts Layouts, and  
Schematics.  
AD-A072 002      \* \* \*  
BAERWALD, JOHN      \* \* \*  
Design Guidelines for Recreational  
Roads.  
AD-A018 953      \* \* \*  
\*BAGBY, D. GORDON      \* \* \*  
Study on the Potential Use of  
Industrialized Building for the  
Department of the Army. Volume I:  
Summary.  
AD- 732 853      \* \* \*  
Study on the Potential Use of  
Industrialized Building for the  
Department of the Army. Volume II:  
Narrative.  
AD- 732 854      \* \* \*  
Study on the Potential Use of  
Industrialized Building for the  
Department of the Army. Volume
- AD- 732 855      \* \* \*  
III: Appendices.  
Initial Quality and Life-Cycle  
Costs in Military Family Housing.  
AD- 764 452      \* \* \*  
BALBACH, H. E.      \* \* \*  
Environmental Impact Assessment  
Study for Army Military Programs.  
AD- 771 062      \* \* \*  
Computer-Aided Environmental Impact  
Analysis for Construction  
Activities: User Manual.  
AD-A008 988      \* \* \*  
Compendium of Administrators of  
Land Use and Related Programs.  
AD-A057 226      \* \* \*  
BALBACH, HAROLD      \* \* \*  
Data Requirements for Army Land Use  
Planning and Management.  
AD-A062 599      \* \* \*  
\*BALBACH, HAROLD E.      \* \* \*  
Field Use of the Environmental  
Impact Computer System.  
AD-A056 406      \* \* \*  
BANDY, JOHN T.      \* \* \*  
Tertiary Treatment of Wastewater  
Using a Rotating Biological  
Contact System.  
AD-A082 502      \* \* \*  
BARAN, R. S.      \* \* \*  
Ecological Baseline, Fort Hood,  
Texas.  
AD-A088 271      \* \* \*  
\*BARAN, ROBERT      \* \* \*  
Interactive Environmental Impact  
Computer System (EICS) User Manual.

PERSONAL AUTHOR INDEX-2  
UNCLASSIFIED 099062

AVE-BAR

# UNCLASSIFIED

- AD-A074 890  
\*BARENBERG, ERNEST J. \* \* \*  
Pavement Distress Identification and Repair.  
AD- 758 447
- BARRETT, H. \* \* \*  
Inflation/Foam/Shotcrete System for Rapid Shelter Construction.  
AD-A040 789
- BARTHOLOMEW, CHARLES L. \* \* \*  
Pavement Distress Identification and Repair.  
AD- 758 447
- BATSON, G. B. \* \* \*  
Fibrous Concrete - Construction Material for the Seventies (May 1-3, 1972).  
AD- 756 384
- \*BATSON, GORDON B. \* \* \*  
Inflation Forming of Steel Fiber-Reinforced Concrete Domes.  
AD-A005 046
- \*BECKER, D. G. \* \* \*  
An Analysis of Military Migration in the United States.  
AD-A076 552
- BECKER, HARRY \* \* \*  
Typical Contract Specifications for Collection of Refuse and Sanitary-Landfill Operations.  
AD-A061 638
- \*BEHRMANN, RUTH M. \* \* \*  
Small-Scale Static Load Model Study: Behavior of Rigid Pavement Loaded Near the Edge.
- AD- 742 2:4  
\*BEITELMAN, A. \* \* \*  
Review of Formulation and Testing Procedures for Coal Tar Epoxy (SSPC Paint 16-68T).  
AD-A030 566
- \*BEITELMAN, ALFRED \* \* \*  
Maintenance Painting of Steel Structures.  
AD-A030 397
- \* \* \*  
Preliminary Selection of Compatible Solvents for Vinyl Paints.  
AD-A067 708
- \*BEITELMAN, A. \* \* \*  
Spray Painting: Equipment and Techniques for Application of Vinyl Paints.  
AD-A039 029
- \*BELLINI, PAUL X. \* \* \*  
Rapid Construction for Hardening Above-Ground Facilities to Small Arms Fire.  
AD-A054 306
- BENSON, J. \* \* \*  
In-Hardstand Tactical Vehicle Maintenance Facilities--Concept Design and Preliminary Recommendations for Wastewater Treatment.  
AD-A067 985
- BENSON, L. J. \* \* \*  
Vehicle Washing Operations and Wastewater Discharge, Fort Drum, NY - Findings and Recommendations.  
AD-A026 173
- \* \* \*  
Recommended Design Criteria for Wastewater Treatment at Proposed
- Consolidated Tactical Vehicle Wash Facility, Fort Drum, NY.  
AD-A042 629 \* \* \*
- Water Usage Profile -- Fort Carson, CO.  
AD-A053 227
- \*BENSON, LEE B. \* \* \*  
Construction Contract Type Selection Procedures.  
AD-A066 384
- \*BERSHAD, BLAINE D. \* \* \*  
Decor Guide for Enlisted Personnel Dining Facilities.  
AD-A003 828
- \* \* \*  
Decor Guide for Enlisted Personnel Dining Facilities.  
AD-A074 902
- BHATTACHARYYA, RABI K. \* \* \*  
An Analytical Model for Uniaxial Cyclic Inelastic Behavior of Reinforced Concrete.  
AD-A024 910
- BIRKIMER, D. \* \* \*  
Polymerized Lightweight Structural Elements.  
AD- 762 113
- \*BIRKIMER, DONALD L. \* \* \*  
CRITICAL NORMAL FRACTURE STRAIN OF PLAIN AND STEEL WIRE FIBROUS-REINFORCED CONCRETE.  
AD- 695 719
- BLACKMON, R. \* \* \*  
Facility Simulation Model for Advanced BMD Systems. Volume 1. Executive Summary.  
AD-A009 743 \* \* \*

PERSONAL AUTHOR INDEX-3  
UNCLASSIFIED 099062

BAR-LAC

## UNCLASSIFIED

Facility Simulation Model for  
Advanced BMD Systems. Volume IIA.  
Executive Control Module: User's  
Manual.  
AD-A009 744

\* \* \*

Facility Simulation Model for  
Advanced BMD Systems. Volume IIB.  
Executive Control Module: Program  
Reference Manual.

AD-A009 745

\* \* \*

Facility Simulation Model for  
Advanced BMD Systems. Volume IIC.  
Executive Control Module: Program  
Listing.

AD-A009 746

\* \* \*  
 Facility Simulation Model for  
 Advanced BMD Systems. Volume IIIA.  
 Structural Module. User's Manual.  
 AD-A009 747

\* \* \*

Facility Simulation Model) for  
Advanced BMD Systems. Volume IVB.  
Power Module. Program Reference  
Manual.

AD-A009 748

\* \* \*

Facility Simulation Model for  
Advanced BMD Systems. Volume VI:  
Miscellaneous Module.

AD-A010 632

\* \* \*

Facility Simulation Model for  
Advanced BMD Systems. Volume IIIC:  
Structural Module: Program  
Listing.

AD-A010 713

\* \* \*  
 Facility Simulation Model for  
 Advanced BMD Systems. Volume VA:  
 HVAC/PC Module: User's Manual.  
 AD-A010 714

\* \* \*

Facility Simulation Model) for  
Advanced BMD Systems. Volume VB:  
HVAC/PC Module: Program Reference  
Manual.

AD-A010 715

Facility Simulation Model for  
Advanced BMD Systems. Volume 111B.  
Structural Module: Program  
Reference Manual.  
AD-A011 226

**\* \* \***  
**Facility Simulation Model for**  
**Advanced BMD Systems. Volume IVA.**  
**Power Module: User's Manual.**  
**AD-A011 227**

\* \* \*

Facility Simulation Model for  
Advanced BMD Systems. Volume IVC.  
Power Module: Program Listing.  
AD-A011 231

\* \* \*  
Facility Simulation Model for  
Advanced BMD Systems. Volume VC.  
HVAC/PC Module: Program Listing.  
AD-A011 232

Facility Simulation Model for  
Advanced BMD Systems. Volume VIII.  
Operational Manual.  
AD-A011 235

\* \* \*  
Facility Simulation Model for  
Advanced BMD Systems. Volume VII:  
Data Base.  
AD-A015 973

BLACKMON, ROBERT B. \* \* \*  
Housing Maintenance Contract guide.  
AD-A084 539

**BLAIR, J.**  
\* \* \*  
**Evaluation of Alternative Reroofing  
Systems.**  
**AD-A071 578**

**\*\*\*  
Built-Up Roof Construction Quality  
Control.  
AD-A073 619**

BLAKEY-SMITH, MARTHA A.  
\* \* \*  
Housing Maintenance, Contract guide.  
AD-A064 539

**\*BLOSS, DONALD R. \* \* \***  
**Development and Evaluation of a**  
**High-Strength Polyester Synthetic**  
**Concrete.**  
**AD- 867 374L**

BOLAND, THOMAS F.      \*      \*

Proceedings of the CIB W-65 Working  
Commission on Organization and  
Management of Construction. Volume  
III. International Council for  
Building Research and Documentation  
and Dissemination,  
AD-A051 438

\* \* \*

Ireland/United Kingdom-Research Consortium, Report Number 1. The Construction Industry-A perspective, AD-A075 801

BOTERO, S. A.  
\* \* \*  
Computer-Aided Final Design Cost  
Estimating System Overview.  
AD-A040 119

\*BOWLES, J. E.      \* \* \*  
 Foundations for Family Housing.  
 AD-778 156

\*BRAUER, R. L.      \* \* \*  
Occupants Opinions of Military  
Housing: Responses to Open-Ended  
Questions in Army Portion of Tri-  
Services Survey.  
AD- 784 059

Army Family Housing: Preferences  
and Attitudes About Housing  
Interiors. Volume I. Methodology  
and General Results. Preferences  
of Occupants in Military Family  
Housing.  
AD-A007 133

### Army Family Housing: Preferences

PERSONAL AUTHOR INDEX-4  
UNCLASSIFIED

**LAC-BRA**

# UNCLASSIFIED

- and Attitudes about Housing Interiors. Volume II. Preferences. AD-A007 741 \* \* \*
- Army Family Housing: Preferences and Attitudes About Housing Interiors. Volume III: Predictors of Satisfaction with Housing Interiors. AD-A011 187 \* \* \*
- BRAUER, ROGER \* \* \*
- Facility Information for U.S. Army Tactical Vehicle Organizational and Support Maintenance. AD-A083 683 \* \* \*
- BRAUER, ROGER L. \* \* \*
- Initial Report on Systemizing Information to Identify and Relate Behavioral and Physical Design Parameters. AD- 757 627 \* \* \*
- Survey of Soldiers' Attitudes Toward Troop Housing. Volume I: Summary Report. AD-A009 700 \* \* \*
- Survey of Soldiers' Attitudes Toward Troop Housing. Volume II. AD-A009 701 \* \* \*
- Concepts for the Generation, Communication, and Evaluation of Habitability Criteria. AD-A041 187 \* \* \*
- Development of an Objective Definition of Habitability and a Habitability Data Base. AD-A041 188 \* \* \*
- A Prototype Procedure for the Local Generation of Facility Requirements. AD-A043 172 \* \* \*
- Use of 'Ideal' Ratings as a Standard for Evaluating Facilities. AD-A058 570 \* \* \*
- A Prototype Procedure for Facility Design Reviews. AD-A065 457 \* \* \*
- Methods for Developing Habitability Design Criteria. AD-A088 011 \* \* \*
- BRITSKY, M. A. \* \* \*
- Development of the Military Construction Data System (MCDS). Part I. AD-A000 710 \* \* \*
- \*BRITTAIN, RICHARD GRAY \* \* \*
- Decor Guide for Commissary Store Facilities. AD-A023 972 \* \* \*
- \*BROWN, D. W. \* \* \*
- Consolidation of RPMA at Fayetteville, NC. Volume II. Summary Cost Analysis for Consolidation of RPMA in the Fayetteville, NC Area. AD-A030 518 \* \* \*
- Consolidation of RPMA at Fayetteville, NC. Volume III. Cost Analysis Support and Backup Data for the Consolidation of RPMA in the Fayetteville, NC Area. AD-A030 519 \* \* \*
- \*BROWN, DAVID W. \* \* \*
- Structural Fire Protection/Prevention Consolidation Study for Fayetteville, NC Area. AD-A018 217 \* \* \*
- Consolidation of RPMA at Fayetteville, N. C. Volume I. Executive Summary for the Study of Consolidation of RPMA in the Fayetteville, N. C. Area. AD-A033 754 \* \* \*
- Consolidation of RPMA at Fayetteville, NC. Volume IV. General Procedures for Conducting RPMA Consolidation Studies. AD-A041 331 \* \* \*
- Management Summary: Hospital Equipment Maintenance System. AD-A044 454 \* \* \*
- Management Summary. Facilities Engineering Equipment Maintenance System (FEEMS). AD-A061 091 \* \* \*
- Total Contract Maintenance for Mannheim Family Housing. AD-A080 609 \* \* \*
- Housing Maintenance Contract guide. AD-A084 539 \* \* \*
- \*BROWN, GERALD J. \* \* \*
- Material Handling Equipment for Commissary Warehouses. AD-A027 385 \* \* \*
- Material Handling Equipment Selection Guide for Commissary Warehouses. AD-A027 386 \* \* \*
- Military Construction Engineering and Design Cost Forecasts. AD-A035 262 \* \* \*
- BROWN, J. J. \* \* \*
- LIFE2 User's Manual. AD-A023 186 \* \* \*
- BROWN, R. \* \* \*
- True-Integrating Environmental Noise Monitor and Sound-Exposure Level Meter. Volume IV. Mechanical Construction and Electrical Check

PERSONAL AUTHOR INDEX-5  
UNCLASSIFIED 099062

RAU-ROW



# UNCLASSIFIED

Out. AD-A083 321	AD-A032 223	Chloride Sensitivity of the Corrosion Rate of Zinc-Coated Reinforcing Bars. AD-A030 565
BRYANT, DALE	Pollution Estimation Factors. AD-A033 753	
An Interim Guide to Industrialized Building Systems. AD-A034 131	*CARLSON, K. W.	*CEDERREN, HARRY R.
BRYANT, DALE A.	The Examination of Discontinuities in Welds by Stereoradiography. AD- 749 459	Methodology and Effectiveness of Drainage Systems for Airfield Pavements. AD-A003 237
Monitoring of the Fort Knox Industrialized BQ Project--Design and Construction Phases. AD-A019 929	The Introduction of Discontinuities in High Strength Steel Weldments. AD- 755 524	CHANAUD, R. C.
*BURGESS, J. H.	*CARLSON, KENNETH W.	Cost Effectiveness of Alternative Noise Reduction Methods for Construction of Family Housing. AD-A028 922
Fort Lee Enlisted Personnel Dining Facility Modernization Evaluation program. AD-A042 580	The Effect of Weld Defects on RFI Shielding Effectiveness. AD- 773 716	Construction-Site Noise Control Cost-Benefit Estimating Procedures. AD-A051 737
BURGESS, JOHN H.	CARROLL, MICHAEL G.	CHANAUD, ROBERT C.
A Prototype Procedure for the Local Generation of Facility Requirements. AD-A043 172	Monitoring of the Fort Knox Industrialized BQ Project--Design and Construction Phases. AD-A019 929	Construction-Site Noise Control Cost-Benefit Estimation Technical Background. AD-A050 813
Literature Research on Living, Working, and Training Facility Environments. AD-A059 058	Procuring Today's Building Technology. Volume II. AD-A030 520	CHATTERJEE, S.
*BURNS, JOHN J., JR	Procuring Today's Building Technology: Volume I. A Summary. AD-A031 000	Procedures for Reviewing Environmental Impact Assessments and Statements for Construction Projects. AD-A015 020
Experimental Verification of Ventilation Analysis Procedure. AD-A010 630	*CARTER, ROY V.	CHEN, C. G.
CANNON, JOHN	Air Pollution Engineering Source Evaluation of Ammonia Oxidation Plant Number 10, Huiston Army Ammunition Plant, Kingsport, Tennessee. AD- 774 299	Evaluation of the Corrosion Resistance of Alternate Revetment Wire Fabric Materials in the Lower Mississippi River. AD-A043 558
Typical Contract Specifications for Collection of Refuse and Sanitary- Landfill Operations. AD-A061 638	Comparative Evaluation of Military and Commercial Ammonia Oxidation Plants Using the Pressure Process. AD-A005 045	CHOI, C. K.
CANNON, JOHN R.		Three-Dimensional Seismic Structural Analysis of Letterman
Water/Wastewater Survey Guidelines.	CATO, S.	

PERSONAL AUTHOR INDEX-6  
UNCLASSIFIED 099062

RYA-HOI

# UNCLASSIFIED

Hospital. AD-A022 085	COLWELL, GLENN E. * * * Construction Contract Type Selection Procedures. AD-A066 384	AD-A034 662 * * * Fracture Characteristics of Two High-Strength, Low-Alloy and Two Stainless Steels. AD-A035 629 * * *
CHOVICHEN, V. * * * Methodology for Establishing Equipment Utilization Standards. AD-A058 559	CONLEY, K. A. * * * Vehicle Washing Operations and Wastewater Discharge, Fort Drum, NY - Findings and Recommendations. AD-A026 173	The Effects of Base Metal Notch Orientation and Acuity and Weld Porosity on the Dynamic Tear Toughness of A514F Steel. AD-A037 046 * * *
CHUNG, KIN-MAN * * * Development of the Military Construction Data System (MCDS). Part II. AD-A024 938	CONLEY, KATHY * * * Air Pollution Engineering Source Evaluation of Ammonia Oxidation Plant Number 10, Holston Army Ammunition Plant, Kingsport, Tennessee. AD- 77- 299	Effect of Lack of Penetration on Fatigue Resistance of High-Strength Structural Steel Welds. AD-A037 047 * * *
*CIRCEO, LOUIS J., COL CE, CDR/DIR Army Corps of Engineers, Box 4005, Champaign, Illinois 61820. Telephone: AC 217-352-6511, Fts 953- 7011 AD- 990 800	*CONLEY, KATHY A. * * * Migration of Explosives and Chlorinated Pesticides in a Simulated Sanitary Landfill. AD-A030 453	Evaluation of the Corrosion Resistance of Alternate Revetment Wire Fabric Materials in the Lower Mississippi River. AD-A043 558 * * *
COLLISHAW, A. N. * * * Field Evaluation of the Modular Augered-Bed Heat-Recovery Solid Waste Incinerator. AD-A054 707	COOK, JERE * * * Preliminary Design and Construction Guidelines for Vertical Construction in Desert and Tropical Theaters of Operations. AD-A032 124 * * *	The Effects of Weld Porosity on the Fracture Toughness of A514F Steel. AD-A045 185 * * *
Energy Recovery from Solid Waste in the Charleston, SC, SMSA. AD-A056 196 * * *	*COX, E. P. * * * Failure Analysis of Ozark, Arkansas, Power Plant Socket-Head Cap Screws. AD-A029 911	Evaluation of Alternate Wire Fabric Materials for Articulated Concrete Mattresses. AD-A018 951 * * *
Technical Evaluation Study: Engery Recovery from Solid Waste at Fort Dix, NJ and Nearby Civilian Communities. AD-A062 653	Alternative Theater of Operations Building Systems. AD-A042 312	CRAMER, R. W. * * * DECOR Catalog for Dining Facilities. AD- 760 185 * * *
COLVER, RICHARD J. * * * Automated Scheduling of Maintenance Events: Status of Fitzsimons Hospital Study. AD- 772 896	The Effects of Clustered Porosity on the Shear Strength of A 514F Transverse Fillet Welds. * * *	Dining Facility User-Attitudes and Environmental Design Research at Travis AFB, California. AD- 765 477 * * *
Management Summary: Hospital Equipment Maintenance System. AD-A044 454		CRUISANT, W. J. * * * The Effects of Fast and Thermal Neutron Flux and Gamma Radiation on the Transmission Characteristics of

PERSONAL AUTHOR INDEX-7  
UNCLASSIFIED 099062

MOV-RO1

# UNCLASSIFIED

- Optical Fibers.  
AD-A042 429
- State of the Art in Fiber Optics  
Communications and Data Transfer.  
AD-A042 579
- \*CROISANT, WILLIAM  
Development of Conduit Design  
Analytical Procedure.  
AD-A056 218
- \*CROISANT, WILLIAM J.  
Analysis of a Nonlinear  
Electromagnetic Field Penetration  
Problem.  
AD-A056 424
- CSIZMADIA, TIBOR D.  
An Interim Guide to Industrialized  
Building Systems.  
AD-A034 131
- Effective Use of Systems Building  
Technology: Open Systems Catalog.  
Volume I. Open Systems Guide.  
AD-A040 756
- CUNNINGHAM, WALTER J.  
Earthmoving, Lifting, and Pulling  
Requirements for the Combat  
Engineer Vehicle (CEV).  
AD-B042 190L
- \*DAINS, R. B.  
An Evaluation of Computer-Aided  
Architectural Systems.  
AD- 785 551
- D'AMATO, R. E.  
A Practical Application of  
Community Noise Analyses -- Case  
Study of Allegheny County,  
Pennsylvania.  
AD-A038 232
- \*DAVIEL,  
Computer-Aided Engineering and  
Architectural Design System  
(CAEADS). Volume I. Summary.  
AD-A065 827
- Computer-Aided Engineering and  
Architectural Design System  
(CAEADS). Volume II. Concise  
Review.  
AD-A067 719
- DARTER, MICHAEL  
Pavement Inspection Reference  
Manual.  
AD-A017 329
- DARTER, MICHAEL I.  
Pavement Functional Condition  
Indicators.  
AD-A007 152
- Development of an Installation  
Surfaced Area Maintenance and  
Repair Management System.  
AD-A017 328
- Development of a Pavement  
Maintenance Management System.  
Volume I. Airfield Pavement  
Condition Rating.  
AD-A048 884
- Development of a Pavement  
Maintenance Management System.  
Volume II. Airfield Pavement  
Distress Identification Manual.  
AD-A049 029
- Development of a Pavement  
Maintenance Management System.  
Volume III. Maintenance and Repair  
Guidelines for Airfield Pavements.  
AD-A056 575
- Development of a Pavement Condition  
Index for Roads and Streets.  
AD-A057 148
- Development of a Pavement  
Maintenance Management System.  
Volume V. Proposed Revision of  
Chapter 3. AFR 93-5.  
AD-A058 860
- Development of a Pavement  
Maintenance Management System.  
Volume IV. Appendices A through I.  
Maintenance and Repair Guidelines  
for Airfield Pavements.  
AD-A060 883
- DAVIS, M. L.  
Technical Evaluation Study of the  
Consolidated Field Maintenance  
Facility at Fort Bragg, N.C.  
AD- 772 894
- \*DAVIS, T. A.  
Conceptualization of Habitability  
Expressions for the Habitability  
Data Base.  
AD-A029 661
- \*DAVIS, THOMAS A.  
Conceptualization for the  
Generation of Habitability  
Requirements.  
AD-A030 091
- Development of an Objective  
Definition of Habitability and a  
Habitability Data Base.  
AD-A041 188
- Development of a Prototype  
Habitability Data Base.  
AD-A058 824
- \*DAVISSON, M. T.  
Inspection of Pile Driving  
Operations.  
AD- 749 458
- DEALY, R. J.

PERSONAL AUTHOR INDEX-B  
UNCLASSIFIED 099062

CRO-EAL

# UNCLASSIFIED

<p>Technology Evaluation of Army-Scale Waste-to-Energy Systems. AD-A042 578</p> <p>DECARDY, JOHN R. * * *</p> <p>Material Handling Equipment for Commissary Warehouses. AD-A027 385</p> <p>Material Handling Equipment Selection Guide for Commissary Warehouses. AD-A027 386</p> <p>Military Construction Engineering and Design Cost Forecasts. AD-A035 262</p> <p>DELONG, C. E. * * *</p> <p>A Data-Based Methodology for Specifying Construction Project Durations. AD- 767 529</p> <p>DEMINGO, P. * * *</p> <p>Implementation of Resource Recovery Guidelines at Fort Meade, Fort Lewis, and Fort Sill. AD-A072 003</p> <p>*DEPONA, JOHN M., III * * *</p> <p>Profit Primer: An Evaluation of Alternate Profit Determination Models. AD-A066 112</p> <p>Zero Base Budget, Civil Works Operation and Maintenance System: Executive Summary. AD-A088 634</p> <p>The Wages of Risk: Determining Fair and Reasonable Profit Objectives. AD-A088 925</p> <p>*DESSOUKY, M. I. * * *</p>	<p>Selection and Design Criteria for the Army Facilities Components System. AD- 779 511</p> <p>*DIEJEVEEN, W. J. * * *</p> <p>Proceedings of the CIB W-65 Working Commission on Organization and Management of Construction. Volume III. International Council for Building Research and Documentation and Dissemination. AD-A051 438</p> <p>*DINNAT, R. M. * * *</p> <p>Cost Effectiveness of Three Different Interior Open-Type Offices. AD- 758 151</p> <p>Attitudes and Preferences of Occupants of Military Family Housing Communities. Volume I. Executive Digest. AD- 777 769</p> <p>DINNAT, ROBERT M. * * *</p> <p>Study on the Potential Use of Industrialized Building for the Department of the Army. Volume I: Summary. AD- 732 853</p> <p>Study on the Potential Use of Industrialized Building for the Department of the Army. Volume II: Narrative. AD- 732 854</p> <p>Study on the Potential Use of Industrialized Building for the Department of the Army. Volume III: Appendices. AD- 732 855</p> <p>DOCHERTY, PETER * * *</p>	<p>Proceedings of the CIB W-65 Working Commission on Organization and Management of Construction. Volume III. International Council for Building Research and Documentation and Dissemination. AD-A051 438</p> <p>DOLAN, W. H. * * *</p> <p>Analysis of Central Total Energy Systems at Military Facilities. AD-A044 813</p> <p>DONAHUE, B. * * *</p> <p>Hazardous Waste Surveys of Two Army Installations and an Army Hospital. AD-A088 260</p> <p>DONAHUE, B. A. * * *</p> <p>Cost of Recycling Waste Material from Family Housing. AD-A045 421</p> <p>User Evaluation of CERL Air, Water/Wastewater, and Solid Waste Survey Guidelines. AD-A061 123</p> <p>Simplified Sanitary Landfill Design and Operation Analysis. AD-A064 356</p> <p>Simplified Sanitary Landfill Design. AD-A073 894</p> <p>DONAHUE, BERNARD * * *</p> <p>Installation Solid Waste Survey Guidelines. AD-A018 879</p> <p>Sanitary Landfill Compactor Evaluation. AD-A067 697</p> <p>*DONAHUE, BERNARD A. * * *</p>
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PERSONAL AUTHOR INDEX-9  
UNCLASSIFIED 099062

ECA-DOH

# UNCLASSIFIED

<p>Air Pollution Survey Guidelines for Army Installations. AD-A029 633</p>	<p>AD-A007 741 Army Family Housing: Preferences and Attitudes About Housing Interiors. Volume III: Predictors of Satisfaction with Housing Interiors. AD-A011 187</p>	<p>*EBERHARDT, A. C. * * * An Analysis of Pickett's Solution to Westergaard's Equation for Rigid Pavements. AD- 755 526</p>
<p>Water/Wastewater Survey Guidelines. AD-A033 223</p>	<p>Pollution Estimation Factors. AD-A033 753</p>	<p>* * * Computer Program for the Finite Element Analysis of Concrete Airfield Pavements. AD- 771 160</p>
<p>Typical Contract Specifications for Collection of Refuse and Sanitary-Landfill Operations. AD-A051 638</p>	<p>DRESSEL, DAVID * * * Facility Information for: U.S. Army Tactical Vehicle Organizational and Support Maintenance. AD-A083 683</p>	<p>* * * Development of a Design Manual for Concrete Floor Slabs on Grade. AD- 773 715</p>
<p>Evaluation of Alternatives for Restoring the South Boiler House at Joliet AAP to High-Sulfur-Coal Burning Capability. AD-A069 374</p>	<p>*DRESSEL, DAVID L. * * * Initial Report on Systemizing Information to Identify and Relate Behavioral and Physical Design Parameters. AD- 757 627</p>	<p>*EBERHARDT, ARTHUR C. * * * Aircraft-Pavement Interaction Studies, Phase I: A Finite-Element Model of a Jointed Concrete Pavement on a Non-Linear Viscous Subgrade (Dynamic Interaction of Aircraft-Pavement Systems). AD- 764 243</p>
<p>Implementation of Resource Recovery Guidelines at Fort Meade, Fort Lewis, and Fort Sill. AD-A072 003</p>	<p>* * * Concepts for the Generation, Communication, and Evaluation of Habitability Criteria. AD-A041 187</p>	<p>*EDWARDS, E. E. * * * Study of Causes of Pavement Deterioration. Investigation of Techniques and/or Methods to Retard 'D' Line Cracking in PCC Pavements and Structures. AD- 894 873L</p>
<p>*DORNAN, KATHLEEN K. * * * Deficiency Judgments in Real Estate Eminent Domain Proceedings. AD-A055 874</p>	<p>* * * A Prototype Procedure for the Local Generation of Facility Requirements. AD-A043 172</p>	<p>ELBL, M. * * * Technical Evaluation Study of the Consolidated Field Maintenance Facility at Fort Bragg, N.C. AD- 772 894</p>
<p>DRESSEL, D. L. * * * Occupants Opinions of Military Housing: Responses to Open-Ended Questions in Army Portion of Tri-Services Survey. AD- 784 059</p>	<p>* * * A Prototype Procedure for Facility Design Reviews. AD-A065 457  DROBNY, N. L. * * * Procedures for Reviewing Environmental Impact Assessments and Statements for Construction Projects. AD-A015 020</p>	<p>ELBL, M. E. * * * Technical Evaluation Study Solid Waste Generation and Disposal Red River Army Depot, Texarkana, Texas. AD- 779 509</p>
<p>AD-A007 133 Army Family Housing: Preferences and Attitudes about Housing Interiors. Volume II. Preferences.</p>	<p>DUSTER, K. * * * Densified Biomass as an Alternative Army Heating and Power Plant Fuel. AD-A083 317</p>	<p>ELLEBY, H. A. * * *</p>

PERSONAL AUTHOR INDEX-10  
UNCLASSIFIED 099062

DOR-LLE

# UNCLASSIFIED

- Design Criteria for Theater of Operations Glued-Laminated Timber Highway Bridges. Volume I.  
AD-A035 687 \* \* \*
- Design Criteria for Theater of Operations Glued-Laminated Timber Highway Bridges. Volume II. Appendices A-E.  
AD-A035 688 \* \* \*
- \*ELLISON, ROBERT L. \* \* \*  
The Job Activities Description (JAD) Questionnaire: An Analysis of Time Spent on and Importance of Managerial Duties.  
AD-A074 175 \* \* \*
- ENG. D. \* \* \*
- Facility Simulation Model for Advanced BMD Systems. Volume IVB. Power Module. Program Reference Manual.  
AD-A009 748 \* \* \*
- Facility Simulation Model for Advanced BMD Systems. Volume IVA. Power Module: User's Manual.  
AD-A011 227 \* \* \*
- Facility Simulation Model for Advanced BMD Systems. Volume IVC. Power Module: Program Listing.  
AD-A011 231 \* \* \*
- A Study of the Technical Feasibility of Developing a Standardized Energy Control System Specifically for Army Facilities.  
AD-A044 455 \* \* \*
- \*ENG, DOMINIC \* \* \*  
Air Curtain Machines for Food Service Facilities.  
AD-A039 364 \* \* \*
- \*ERIKSON, CARL A. \* \* \*
- Preliminary Investigations of Risk Sharing in Construction Contracts.  
AD-A054 299 \* \* \*
- Construction Contract Risk Assignment.  
AD-A071 623 \* \* \*
- ESPINOSA, ALVARO F. \* \* \*  
Guidelines for Developing Design Earthquake Response Spectra.  
AD-A012 728 \* \* \*
- EUBANKS, L. \* \* \*  
Evaluation of Alternative Reroofing Systems.  
AD-A071 578 \* \* \*
- FILECCIA, R. \* \* \*  
Recommended Design Criteria for Wastewater Treatment at Proposed Consolidated Tactical Vehicle Wash Facility, Fort Drum, NY.  
AD-A042 629 \* \* \*
- \*FILECCIA, R. J. \* \* \*  
Industrial Wastewaters, Red River Army Depot, Texarkana, Texas.  
AD- 778 162 \* \* \*
- Environmental Protection Guidelines for Construction Contract Specification Writers.  
AD-A014 146 \* \* \*
- Vehicle Washing Operations and Wastewater Discharge, Fort Drum, NY - Findings and Recommendations.  
AD-A026 173 \* \* \*
- Water Usage Profile -- Fort Carson, CO.  
AD-A053 227 \* \* \*
- Identification and Quantification of Hydrocarbon Products in Effluents.  
AD-A053 227 \* \* \*
- AD-A088 268 \* \* \*
- \*FILECCIA, ROBERT \* \* \*  
In-Handstand Tactical Vehicle Maintenance Facilities--Concept Design and Preliminary Recommendations for Wastewater Treatment.  
AD-A067 985 \* \* \*
- Facility Information for: U.S. Army Tactical Vehicle Organizational and Support Maintenance.  
AD-A083 683 \* \* \*
- FISHER, W. E. \* \* \*  
Seismic Structural Design/Analysis Guidelines for Buildings.  
AD-A037 747 \* \* \*
- Liquid-Spring Shock Isolator Modeling.  
AD-A044 993 \* \* \*
- FISHER, WALTER E. \* \* \*  
Current and Tentative Seismic Design Provisions for Buildings: Preliminary Comparisons.  
AD-A075 204 \* \* \*
- Shock Resistance of Air-Conditioning Units Test Report for Ellis and Watts Company, Cincinnati, Ohio.  
AD-A075 607 \* \* \*
- FITTIPALDI, J. J. \* \* \*  
Compendium of Administrators of Land Use and Related Programs.  
AD-A057 226 \* \* \*
- FITTIPALDI, JOHN J. \* \* \*  
Computer-Aided Environmental Impact Analysis for Industrial, Procurement, and Research, Development, Test, and Evaluation

PERSONAL AUTHOR INDEX-11  
UNCLASSIFIED 099062

ELL-117

# UNCLASSIFIED

- Activities: User Manual.  
AD-A056 997
- Computer-Aided Environmental Impact  
Analysis for Army Real Estate  
Actions: User Manual.  
AD-A068 746
- Guidelines for Review of EA/EIS  
documents.  
AD-A089 976
- FITZPATRICK, J. E.  
ADP Manual for the Automated  
Military Construction Progress  
Reporting System (AMPRS).  
AD-A018 437
- Conversion Instructions for the  
Automated Military Construction  
Progress Reporting System (AMPRS).  
AD-A018 439
- Users Manual for the Automated  
Military Construction Progress  
Reporting System (AMPRS).  
AD-A018 716
- FORD, W. D.  
Investigation of Techniques for  
Butt Splicing Rebars.  
AD- 742 781
- Investigation of Ground Fault  
Circuit Interrupter.  
AD-A031 781
- Evaluation of Instrumentation for  
Testing Large Generator Sets.  
AD-A050 169
- FORNANGO, J.  
Investigation of Automated  
Evaluation of Field Weld  
Radiographs.  
AD-A028 605
- FOSTER, RONALD L.  
Military Construction Contract  
Management. Recommendations for  
Improved Military Construction  
Contract Management Procedures.  
AD-A033 476
- FOX, DAVID G.  
The Job Activities Description  
(JAD) Questionnaire: An Analysis of  
Time Spent in and Importance of  
Managerial Duties.  
AD-A074 175
- FREEMAN, DONALD J.  
Water Management Modifications for  
Acetic Ammonium Manufacture at  
Holston Arm. Ammunition Plant.  
AD-B031 260L
- FREEMAN, R. E.  
Cost of Recycling Waste Material  
from Family Housing.  
AD-A045 421
- Investigation of Techniques for  
Achieving Exposed Aggregate  
Surfaces for Site-Cast Concrete.  
AD-A012 110
- GAMBILL, J.  
An Investigation of the  
Susceptibility of Post-Tensioning  
Cables to Stress-Corrosion  
Cracking.  
AD-A035 258
- GAMBILL, JAMES B.  
Shock Resistance of Air-  
Conditioning Units Test Report for  
Ellis and Watts Company,  
Cincinnati, Ohio.  
AD-A075 607
- GANUS, S. S.  
Analysis of Real Property Inventory  
Reporting Procedures.  
AD-A068 360
- GAZDA, M. A.  
Stationary Diesel Engine-Generator  
Set Acceptance Testing Procedures,  
Methods, and Instructions.  
AD-A037 545
- GERDES, G. L.  
Simplified Sanitary Landfill Design  
and Operation Analysis.  
AD-A064 356
- Simplified Sanitary Landfill  
Design.  
AD-A073 444
- Water Management Modifications for  
Acetic Ammonium Manufacture at  
Holston Army Ammunition Plant.  
AD-B031 260L
- GERDES, GARY L.  
Improved Collection and Container-  
Washing Systems for Solid Waste  
Management at Army Installations.  
AD-A054 935
- GESWEIN, ALLEN J.  
Nondestructive Testing of Concrete  
Pavements: Equipment Evaluation.  
AD- 907 397L
- GIBBS, W., JR.  
Cost Effectiveness of Three  
Different Interior Open-Type  
Offices.  
AD- 758 151
- Dining Facility User-Attitudes and  
Environmental Design Research at  
Travis AFB, California.

PERSONAL AUTHOR INDEX-12  
UNCLASSIFIED 099062

172-188





# UNCLASSIFIED

- \*GUNKEL, ROBERT C. \* \* \*  
Inspection of Pavement Grooving.  
AD- 757 208
- HAHIN, C. \* \* \*  
First Annual Inspection of Buzzards  
Bay Pillings.  
AD-A024 381
- Chloride Sensitivity of the  
Corrosion Rate of Zinc-Coated  
Reinforcing Bars.  
AD-A030 565
- An Investigation of the  
Susceptibility of Post-Tensioning  
Cables to Stress-Corrosion  
Cracking.  
AD-A035 258
- HAHIN, CHRISTOPHER \* \* \*  
Evaluation of Alternate Wire Fabric  
Materials for Articulated Concrete  
Mattresses.  
AD-A018 951
- Corrosion Costs of Air Force and  
Army Facilities and Construction of  
a Cost Prediction Model.  
AD-A042 628
- Effects of Corrosion on Military  
Facilities of the Presidio of San  
Francisco.  
AD-A058 727
- Earthmoving, Lifting, and Pulling  
Requirements for the Combat  
Engineer Vehicle (CEV).  
AD-B042 190L
- HAHN, C. B. \* \* \*  
Army Family Housing: Preferences  
and Attitudes About Housing  
Interiors. Volume I. Methodology  
and General Results. Preferences  
of Occupants in Military Family
- Pollution Estimation Factors.  
AD-A033 753
- GRGAS, J. M. \* \* \*  
Information Storage and Retrieval  
System for Life Expectancy of  
Facilities.  
AD- 782 912
- GRGAS, JOHN M. \* \* \*  
Estimating the Life Expectancy of  
Facilities.  
AD-A009 522
- \*GRIFFIN, B. A. \* \* \*  
The Baseline Information System--  
User's Manual.  
AD-A069 324
- GRIFFIN, BRENDA \* \* \*  
Cleaninghouse Information System:  
Description and User Instructions.  
AD-A059 176
- GRUBB, NANCY \* \* \*  
The Wages of Risk: Determining Fair  
and Reasonable Profit Objectives.  
AD-A088 925
- \*GUIAR, W. G. \* \* \*  
ADP Manual for the Automated  
Military Construction Progress  
Reporting System (AMPRS).  
AD-A018 437
- Conversion Instructions for the  
Automated Military Construction  
Progress Reporting System (AMPRS).  
AD-A018 439
- Users Manual for the Automated  
Military Construction Progress  
Reporting System (AMPRS).  
AD-A018 716
- Housing.  
AD-A007 133
- Army Family Housing: Preferences  
and Attitudes about Housing  
Interiors. Volume II. Preferences.  
AD-A007 741
- Army Family Housing: Preferences  
and Attitudes About Housing  
Interiors. Volume III: Predictors  
of Satisfaction with Housing  
Interiors.  
AD-A011 187
- \*HALL, JAMES L. \* \* \*  
Recommended Interface Standards for  
an Army Standard Energy Monitoring  
and Control System.  
AD-A063 936
- \*HALPIN, D. \* \* \*  
Evaluation of Projects for Counter-  
Seasonality Measures.  
AD- 771 909
- \*HALPIN, D. W. \* \* \*  
Construction Time Overruns.  
AD- 766 725
- A Data-Based Methodology for  
Specifying Construction Project  
Durations.  
AD- 767 529
- \*HAMILTON, J. W. \* \* \*  
Local Economic Consequences Study  
(LECS) Preliminary User Manual.  
AD-A088 261
- \*HAMILTON, JOHN C. \* \* \*  
Monitoring of the Fort Knox  
Industrialized BQ Project--Design  
and Construction Phases.  
AD-A019 929

PERSONAL AUTHOR INDEX-14  
UNCLASSIFIED 099062

RGA-HAM

# UNCLASSIFIED

*HAMILTON, JOSEPH WAYNE * * *	AD-A042 578 * * *	Plants. AD-A082 773 * * *
Economic Impact Forecast System, Version 2.0: User's Manual. AD-A073 667	Recovery of Energy from Solid Waste at Army Installations. AD-A044 814 * * *	Densified Biomass as an Alternative Army Heating and Power Plant Fuel. AD-A083 317 * * *
HAMILTON, W. * * *	Field Evaluation of the Modular Augered-Bed Heat-Recovery Solid Waste Incinerator. AD-A054 707 * * *	*HAYS, WALTER W. * * *
Development of the Economic Impact Forecast System (EIFS)--the Multiplier Aspects. AD-A057 936	Application of Modern Coal Technologies to Military Facilities. Volume I. Summary of findings. AD-A055 560 * * *	Guidelines for Developing Design Earthquake Response Spectra. AD-A012 728 * * *
HAPP, W. W. * * *	Energy Recovery from Solid Waste in the Charleston, SC, SMSA. AD-A056 196 * * *	HEALY, J. J. * * *
A Stochastic Network to Model Air Cargo Terminals. AD- 750 365 * * *	Technical Evaluation Study: Energy Recovery from Solid Waste at Fort Dix, NJ and Nearby Civilian Communities. AD-A062 653 * * *	The Effects of Gear Pattern on Pavement Systems Performance. AD-A048 250 * * *
Activity Networks to Model Transportation Systems Subject to Facility Constraints. AD- 757 628 * * *	Thermogravimetric Analysis of Solid Refuse-Derived Fuels and Coal. AD-A067 829 * * *	*HEIDERSBACH, R. H., JR * * *
A Stochastic Network to Model Air Cargo Terminals. AD- 757 629 * * *	Project Development Guidelines for Converting Army Installations to Coal Use. AD-A068 025 * * *	Wood Design Parameters for Theater of Operations Applications. AD- 780 800 * * *
HATHAWAY, S. * * *	Evaluation of Alternatives for Restoring the South Boiler House at Joliet AAP to High-Sulfur-Coal Burning Capability. AD-A069 374 * * *	HERRIN, MORELAND * * *
Fuels: State of the Art in Industrial Utilization. AD-A063 239 * * *	Application of the Package Controlled-Air, Heat-Recovery Solid Waste Incinerator on Army Fixed Facilities and Installations. AD-A071 539 * * *	Pavement Distress Identification and Repair. AD- 758 447 * * *
*HATHAWAY, S. A. * * *	Production and Use of Densified Refuse-Derived Fuel (DRDF) in Military Central Heating and Power Systems. AD-A040 743 * * *	*HERRON, DALE * * *
Technical Evaluation Study: Energy- Recovery Solid Waste Incineration to Naval Station Mayport, Florida. AD-A015 615 * * *	Decor Guide for Enlisted Personnel Dining Facilities. AD-A003 828 * * *	Comparison of Building Loads Analysis and System Thermodynamics (BLAST) Computer Program Simulations and Measured Energy Use for Army Buildings. AD-A085 573 * * *
Technical Evaluation Study: Solid Waste as a Fuel at Ft. Bragg, N. C. AD-A034 416 * * *	Design Features of Package Incinerator Systems. AD-A040 743 * * *	HINTZ, NORMAN * * *
Technology Evaluation of Army-Scale Waste-to-Energy Systems. AD-A040 743 * * *		Decor Guide for Enlisted Personnel Dining Facilities. AD-A074 902 * * *
		*HINTZ, NORMAN C. * * *

PERSONAL AUTHOR INDEX-15  
UNCLASSIFIED 099062

HAM-HIN

# UNCLASSIFIED

DECOR Catalog for Dining Facilities. AD- 760 185	and System Thermodynamics Program to Perform Total Energy System Analysis. AD-A040 744	HOLSHOUSER, D. * * * Interim Feasibility Assessment Method for Solar Heating and Cooling of Army Buildings. AD-A026 588
HITTLE, D. C. * * * Environmental Protection Guidelines for Construction Contract Specification Writers. AD-A014 146	Field Test of Building Energy Analysis Tools and Procedures. AD-A055 095	HOLSHOUSER, D. F. * * * Predicting the Performance of Solar Energy Systems. AD-A035 608
Predicting the Performance of Solar Energy Systems. AD-A035 608	The Building Loads Analysis and System Thermodynamics Program (BLAST). Release Number 1. AD-A056 226	HOLSHOUSER, DONALD F. * * * Method for Estimating Solar Heating and Cooling System Performance. AD-A026 041
The Building Loads Analysis and System Thermo-Dynamics (BLAST) Program. Volume II. Reference Manual. AD-A049 992	Design of Solar Heating and Cooling Systems. AD-A062 719	*HOLZE, GORDON * * * Stiffness Matrix Reduction for Large Structural Systems Using Cholesky Decomposition. AD- 768 721
*HITTLE, DOUG * * * Interim Feasibility Assessment Method for Solar Heating and Cooling of Army Buildings. AD-A025 588	The Building Loads Analysis and System Thermodynamics (BLAST) Program. Version 2.0. Users Manual. Volume I. AD-A072 272	*HOMANS, B. * * * User Manual for the Acquisition and Evaluation of Operational Blast Noise Data. AD- 782 911
Market Evaluation Study: Solar Domestic Water Heaters for DOD barracks. AD-A036 479	Comparison of Building Loads Analysis and System Thermodynamics (BLAST) Computer Program Simulations and Measured Energy Use for Army Buildings. AD-A085 573	Construction Noise: Specification, Control, Measurement, and Mitigation. AD-A010 629
*HITTLE, DOUGLAS C. * * * Fume Emissions from Coal-Tar Pitch. AD-A022 844	HODGE, J. W. * * * Concept Development for Structures on Expansive Soils by the Pattern Language Design Methodology. AD-A017 045	HOMANS, B. L. * * * Cost Effectiveness of Alternative Noise Reduction Methods for Construction of Family Housing. AD-A028 922
Total Energy and Total Utility Systems for Conservation of Resources. AD-A023 244	HOGG, GARY L. * * * Development of Heuristic Procedures to Analyze the Production-Transportation Problem. AD-A016 984	Technical Background: Interim Criteria for Planning Rotary-Wing Aircraft Traffic Patterns, and Siting Noise-Sensitive Land Uses. AD-A031 449
Method for Estimating Solar Heating and Cooling System Performance. AD-A026 041		
Use of the Building Loads Analysis		

PERSONAL AUTHOR INDEX-16  
UNCLASSIFIED 099062

ITT-OMA

# UNCLASSIFIED

User Manual: Interim procedure for Planning Rotary-Wing Aircraft Traffic Patterns and Siting Noise-Sensitive Land Uses.  
AD-A031 450

\*HOMANS, BRIAN \* \* \*  
Rotary-Wing Aircraft Operational Noise Data.  
AD-A051 999

\*HONIG, E. M., JR. \* \* \*  
Multiple Connectivity and the J Integral of Fracture Mechanics.  
AD- 777 544

\* \* \*  
Effects of Cluster Porosity on the Tensile Properties of Butt-weldments in T-1 Steel.  
AD-A004 001

\* \* \*  
RFI Shielding Effectiveness of Steel Sheets with Partly Welded Seams.  
AD-A019 931

\* \* \*  
Analysis of Central Total Energy Systems at Military Facilities.  
AD-A044 813

\* \* \*  
Analysis of Leaks in the High Temperature Hot Water Piping System at Fort Gordon, GA.  
AD-B009 462L

\*HONIG, ERNEST M., JR. \* \* \*  
RFI Shielding Effectiveness of Steel Sheets with Partly Welded Seams,  
AD-A026 043

\* \* \*  
Application of Modern Coal Technologies to Military Facilities. Volume I. Summary of findings.  
AD-A055 560

\*HOWDYSHHELL, P. A.

\* \* \*  
Creep Characteristics of Polyester Concretes.  
AD- 752 454

\* \* \*  
Laboratory Evaluation of a Chemical Technique to Determine Water and Cement Content of Fresh Concrete.  
AD- 784 055

\* \* \*  
The Use of Coral as an Aggregate for Portland Cement Concrete Structures.  
AD- 784 092

\* \* \*  
Evaluation of a Chemical Technique to Determine Water and Cement Content of Fresh Concrete.  
AD-A005 576

\* \* \*  
Operations Guide - Water and Cement Content of Fresh Concrete.  
AD-A022 697

\* \* \*  
Revised Operations Guide for a Chemical Technique to Determine Water and Cement Content of Fresh Concrete.  
AD-A039 120

\* \* \*  
A Comparative Evaluation of the Neutron/Gamma and Kelly-Vail Techniques for Determining Water and Cement Content of Fresh Concrete.  
AD-A040 061

\* \* \*  
Investigation of Techniques for the Rapid Preparation of Painted Wood Surfaces.  
AD-A064 813

HOWDYSHHELL, PAUL \* \* \*  
Polymer Concrete-Reinforced Concrete Composite Beams.  
AD- 762 114

\* \* \*  
The Impact of Materials Shortages on Military Construction.  
AD-A003 833

\*HOWDYSHHELL, PAUL A. \* \* \*  
Rapid Testing of Fresh Concrete.  
AD-A009 702

\* \* \*  
Use of Fly Ash and High-Strength Reinforcing Bars in Military Construction.  
AD-A045 186

\*HUBBARD, JOHN H. \* \* \*  
FEASIBILITY STUDY OF PHOTOMECHANICS TECHNIQUES APPLIED TO STRESS ANALYSIS IN THREE DIMENSIONS.  
AD- 711 526

\* \* \*  
Feasibility of Applying Fringe Multiplication Techniques to Stress Analysis in Three Dimensions.  
AD- 751 172

HUBBARD, S. J. \* \* \*  
Development and Evaluation of a High-Strength Polyester Synthetic Concrete.  
AD- 867 374L

HUNT, A. B. \* \* \*  
Acoustic Directivity Patterns for Army Weapons.  
AD-A066 223

\*ITZKOWITZ, AVRUM E. \* \* \*  
A Survey of the Properties of Computer Communication Protocols. Volume I. The Function, Properties, Specification, and Analysis Methods of Computer Communication Protocols.  
AD-A063 092

JACKSON, C. E. \* \* \*  
Review of the Weldability of Construction Materials.  
AD-A027 383

PERSONAL AUTHOR INDEX-17  
UNCLASSIFIED 099062

HOW-ACK

UNCLASSIFIED

- \*JAIN, R. K. \* \* \*  
Environmental Impact Assessment  
Study for Army Military Programs.  
AD- 771 062
- \* \* \*  
Environmental Impact Computer  
System.  
AD- 787 295
- \* \* \*  
Handbook for Environmental Impact  
Analysis.  
AD-A006 241
- \* \* \*  
Computer-Aided Environmental Impact  
Analysis for Construction  
Activities: User Manual.  
AD-A008 988
- \* \* \*  
Development of the Environmental  
Technical Information System.  
AD-A009 668
- \* \* \*  
A Review and Analysis of  
Environmental Impact Assessment  
Methodologies.  
AD-A013 359
- \* \* \*  
Procedures for Reviewing  
Environmental Impact Assessments  
and Statements for Construction  
Projects.  
AD-A015 020
- \* \* \*  
Computer-Aided Environmental Impact  
Analysis for Air Force Base  
Realignment Activities: User  
Manual.  
AD-A027 431
- JHA::SALE, H. R. \* \* \*  
A Plasticity Formulation for Cyclic  
Inelastic Structural Analysis.  
AD-A036 473
- \* \* \*  
A Unified Approach for Modeling  
Inelastic Behavior of Structural  
Metals under Complex Cyclic  
Loadings.  
AD-A040 741
- \*JOBES, W. P. \* \* \*  
Structures on Expansive Soils.  
AD- 779 510
- JOHNSON, \* \* \*  
Computer-Aided Engineering and  
Architectural Design System  
(CAEADS). Volume I. Summary.  
AD-A065 827
- \* \* \*  
Computer-Aided Engineering and  
Architectural Design System  
(CAEADS). Volume II. Concise  
Review.  
AD-A067 719
- JOHNSON, D. L. \* \* \*  
The Performance of an Experimental  
Solar Heating System.  
AD-A066 699
- \*JOHNSON, E. R. \* \* \*  
CMP Instructions, Specifications,  
and Example.  
AD- 768 098
- \*JOHNSON, J. H. \* \* \*  
Information Flow for Military  
Construction.  
AD-A033 363
- \*JONCICH, D. M. \* \* \*  
The Performance of an Experimental  
Solar Heating System.  
AD-A066 699
- \*JONCICH, DAVID M. \* \* \*  
A Comparison of the Actual and  
Predicted Performance of a Solar  
Assisted Space Heating System.  
AD-A056 452
- \* \* \*  
Design of Solar Heating and Cooling  
Systems.
- AD-A062 719
- JORDANI, DAVID A. \* \* \*  
A Preliminary Concept for a Design  
Criteria Management System.  
AD-A032 125
- JOSHI, S. \* \* \*  
Development of a Weld Quality  
Monitor.  
AD-A027 644
- \*KANAROWSKI, STANLEY M. \* \* \*  
Study of Reflection Cracking in  
Asphaltic Concrete Overlay  
Pavements, Phase I.  
AD- 894 275L
- \* \* \*  
Waterproofing Materials for  
Prevention of Windblown Rain  
Penetration through Masonry Walls.  
AD-A008 997
- \* \* \*  
Problems, Repair Methods,  
Materials, and Equipment.  
AD-A009 667
- \* \* \*  
Evaluation of Bentonite Clay for  
Waterproofing Foundation Walls  
Below Grade.  
AD-A011 180
- \* \* \*  
Investigation of Reflective Solar  
Control Films for Windows.  
AD-A056 620
- \* \* \*  
Investigation of Materials for  
Waterproofing Leaky Concrete  
Ammunition-Storage Bunkers from the  
Inside.  
AD-A064 731
- \*KAO, A. \* \* \*  
Facility Simulation Model for  
Advanced BMD Systems. Volume I.  
Executive Summary.  
AD-A009 743

PERSONAL AUTHOR INDEX-18  
UNCLASSIFIED 099062

JAI-KAO

# UNCLASSIFIED

<p>Facility Simulation Model for Advanced BMD Systems. Volume IIA. Executive Control Module: User's Manual.</p> <p>AD-A009 744</p>	<p>Facility Simulation Model for Advanced BMD Systems. Volume IIB. Executive Control Module: Program Reference Manual.</p> <p>AD-A011 226</p>	<p>Guidelines for Vertical Construction in Desert and Tropical Theaters of Operations.</p> <p>AD-A032 124</p>
<p>Facility Simulation Model for Advanced BMD Systems. Volume IIB. Executive Control Module: Program Reference Manual.</p> <p>AD-A009 745</p>	<p>Facility Simulation Model for Advanced BMD Systems. Volume IVC. Power Module: Program Listing.</p> <p>AD-A011 231</p>	<p>*KAD, ANTHONY M. * * *</p> <p>Material, Design, and Construction Guidelines for Vertical Construction in Desert and Tropical Regions.</p> <p>AD-A057 957</p>
<p>Facility Simulation Model for Advanced BMD Systems. Volume IIC. Executive Control Module: Program Listing.</p> <p>AD-A009 746</p>	<p>Facility Simulation Model for Advanced BMD Systems. Volume VC. HVAC/PC Module: Program Listing.</p> <p>AD-A011 232</p>	<p>Engineer Unit Days Computer Program (UNDAY) - User's Manual.</p> <p>AD-A072 001</p>
<p>Facility Simulation Model for Advanced BMD Systems. Volume IIIA. Structural Module: User's Manual.</p> <p>AD-A009 747</p>	<p>Facility Simulation Model for Advanced BMD Systems. Volume VIII. Operational Manual.</p> <p>AD-A011 235</p>	<p>*KEARNEY, F. * * *</p> <p>Study of Articulated Concrete Revetment Mattress: Test and Analysis - Results of FY 1974 Program.</p> <p>AD-A021 774</p>
<p>Facility Simulation Model for Advanced BMD Systems. Volume IVB. Power Module. Program Reference Manual.</p> <p>AD-A009 748</p>	<p>Facility Simulation Model for Advanced BMD Systems. Volume VII: Data Base.</p> <p>AD-A015 973</p>	<p>Development of a Weld Quality Monitor.</p> <p>AD-A027 644</p>
<p>Facility Simulation Model for Advanced BMD Systems. Volume VI: Miscellaneous Module.</p> <p>AD-A010 632</p>	<p>*KAO, A. M. * * *</p> <p>Alternative Theater of Operations Building Systems.</p> <p>AD-A042 312</p>	<p>Investigation of Automated Evaluation of Field Weld Radiographs.</p> <p>AD-A028 605</p>
<p>Facility Simulation Model for Advanced BMD Systems. Volume IIIC. Structural Module: Program Listing.</p> <p>AD-A010 713</p>	<p>Prefabricated Expandable Foam/Wood Structures for Theater of Operations.</p> <p>AD-A044 991</p>	<p>Study of Articulated Concrete Revetment Mattress: Test and Analysis--Results of FY 1975 Program.</p> <p>AD-A033 440</p>
<p>Facility Simulation Model for Advanced BMD Systems. Volume VA: HVAC/PC Module: User's Manual.</p> <p>AD-A010 714</p>	<p>A Family of Components for the Wood Panelized prefabricated Building System.</p> <p>AD-A065 659</p>	<p>Corrosion of Steel Piling in Seawater: Buzzards Bay -- 1975-1978.</p> <p>AD-A078 626</p>
<p>Facility Simulation Model for Advanced BMD Systems. Volume VB: HVAC/PC Module: Program Reference Manual.</p> <p>AD-A010 715</p>	<p>*KAO, ANTHONY * * *</p> <p>Preliminary Design and Construction</p>	<p>Cathodic Protection of Civil Works Structures.</p> <p>AD-A080 057</p>
		<p>*KEARNEY, F. W. * * *</p>

PERSONAL AUTHOR INDEX-19  
UNCLASSIFIED 099062

KAD-KEA

# UNCLASSIFIED

Corrosion Control in Civil Works:  
Cathodic Protection.  
AD-A045 184

\*KEARNEY, FRANK \* \* \*  
Nondestructive Testing for Field  
Welds: Real Time Weld Quality  
Monitor.  
AD-A058 129

\*KEARNEY, FRANK W. \* \* \*  
Cathodic Protection Design for  
Brackish Water Systems: Fresh  
Water Bayou Lock.  
AD-A054 307

KELLEY, K. C. \* \* \*  
An Evaluation of Computer-Aided  
Architectural Systems.  
AD- 785 551

\*KELLY, WILLIAM T. \* \* \*  
Soil Stabilization Investigation  
for 155 mm Towed Howitzer Firing  
Pads.  
AD- 766 299

\*KEMPHUES, R. F. \* \* \*  
THE EFFECTS OF DILUENTS ON THE  
PHYSICAL PROPERTIES OF EPOXY RESIN  
GROUT.  
AD-D402 631

\*KEMPHUES, ROBERT F. \* \* \*  
Coefficient of Linear Thermal  
Expansion of Epoxy Resin Mortars.  
AD- 742 212

\* \* \*  
Materials and Procedures for the  
Repair of Spalls in Concrete.  
AD- 759 132

\* \* \*  
Laboratory and Field Study of  
Rubber Removal Compounds.  
AD- 890 034L

\*KENNEY, THOMAS A. \* \* \*  
Effective Use of Systems Building  
Technology: Open Systems Catalog.  
Volume III. Building Products  
Information.  
AD-A040 758

KESSLER, F. M. \* \* \*  
Cost Effectiveness of Alternative  
Noise Reduction Methods for  
Construction of Family Housing.  
AD-A028 922

\* \* \*  
Construction-Site Noise Control  
Cost-Benefit Estimating Procedures.  
AD-A051 737

\*KESSLER, FRED M. \* \* \*  
Construction-Site Noise Control  
Cost-Benefit Estimation Technical  
Background.  
AD-A050 813

\*KIM, SEUNG J. \* \* \*  
Construction Scheduling of AFCS  
Facilities Methodology Report.  
AD-A027 584

\* \* \*  
Construction Scheduling of AFCS  
Facilities--Skill Report.  
AD-A028 380

\*KIM, SEUNG JAI \* \* \*  
Engineer Unit Days Computer Program  
(UNDAY) - User's Manual.  
AD-A072 001

\*KIM, SEUNG-JAI \* \* \*  
First Annual Summary of CAEADS  
Development Activities.  
AD-A064 650

KIM, Y. \* \* \*  
Fracture Characteristics of

Structural Steels: Reference  
Manual.  
AD-A072 054

\*KIM, Y. G. \* \* \*  
Directional Transformation in Steel-  
Texture Behavior and Martensite  
Morphology.  
AD- 771 906

\* \* \*  
Fatigue Failure of Hydrogen-  
Embrittled High-Strength Steels.  
AD-A013 380

\* \* \*  
Fracture Characteristics of  
Structural Steels and Weldments.  
AD-A019 930

KIRBY, J. G. \* \* \*  
Information Storage and Retrieval  
System for Life Expectancy of  
Facilities.  
AD- 782 912

\* \* \*  
Consolidation of RPMA at  
Fayetteville, NC. Volume II.  
Summary Cost Analysis for  
Consolidation of RPMA in the  
Fayetteville, NC Area.  
AD-A030 518

\* \* \*  
Consolidation of RPMA at  
Fayetteville, NC. Volume III. Cost  
Analysis Support and Backup Data  
for the Consolidation of RPMA in  
the Fayetteville, NC Area.  
AD-A030 519

\*KIRBY, JEFFREY G. \* \* \*  
Life Expectancy of Facilities.  
AD- 760 489

\* \* \*  
Estimating the Life Expectancy of  
Facilities.  
AD-A009 522

\* \* \*  
Consolidation of RPMA at  
Fayetteville, N. C. Volume I.

PERSONAL AUTHOR INDEX-20  
UNCLASSIFIED 099062

KEA-KIR

# UNCLASSIFIED

Executive Summary for the Study of Consolidation of RPMA in the Fayetteville, N. C. Area. AD-A033 754	AD-A035 608	Development of a Pavement Condition Index for Roads and Streets. AD-A057 148
Engineering and Design Performance Analysis. AD-A035 208	AD-A035 763	Development of a Pavement Maintenance Management System. Volume V. Proposed Revision of Chapter 3. AFR 93-5. AD-A058 860
Consolidation of RPMA at Fayetteville, NC. Volume IV. General Procedures for Conducting RPMA Consolidation Studies. AD-A041 331	AD-A035 779	Development of a Pavement Maintenance Management System. Volume IV. Appendices A through I. Maintenance and Repair Guidelines for Airfield Pavements. AD-A060 883
*KLOSTER, S. E.	*KNIGHT, R. C.	Development of a Pavement Condition Rating Procedure for Roads, Streets, and Parking Lots. Volume I. Conditions Rating Procedure. AD-A074 170
Disposal of Cleaning Debris. AD-A024 751	Attitudes and Preferences of Occupants of Military Family Housing Communities. Volume I. Executive Digest. AD- 777 769	Development of a Pavement Condition Rating Procedure for Roads, Streets, and Parking Lots. Volume II. Distress Identification Manual. AD-A074 171
Disposal of Cleaning Debris. AD-A036 675	*KOA, A.	*KONG, P.
Cost of Recycling Waste Material from Family Housing. AD-A045 421	Facility Simulation Model for Advanced BMD Systems: Operation and Maintenance Program (OANDM). AD-A014 140	Fuels: State of the Art in Industrial Utilization. AD-A063 239
KLOSTER, SHAREN	KOHN, STARR D.	KOTHANDARAMAN, V.
Facility Information for: U.S. Army Tactical Vehicle Organizational and Support Maintenance. AD-A083 683	Development of a Pavement Maintenance Management System. Volume I. Airfield Pavement Condition Rating. AD-A048 884	Pollution Abatement Management System--Concept Definition. AD-A055 565
*KLOSTER, SHAREN E.	Development of a Pavement Maintenance Management System. Volume II. Airfield Pavement Distress Identification Manual. AD-A049 029	Basic Analytical Model for Environmental Impact Assessment of Surface Water Resources--DOSAG User Manual. AD-A069 977
Management of Reservoir Clearing and Cleaning Debris. AD-A057 366	Development of a Pavement Maintenance Management System. Volume III. Maintenance and Repair Guidelines for Airfield Pavements. AD-A056 575	*KRAYBILL, D.
*KUNIS, L. I.		Hazardous Waste Surveys of Two Army
Design Criteria for Theater of Operations Glued-Laminated Timber Highway Bridges. Volume I. AD-A035 687		
Design Criteria for Theater of Operations Glued-Laminated Timber Highway Bridges. Volume II. Appendices A-E.		

PERSONAL AUTHOR INDEX-21  
UNCLASSIFIED 099062

KLO-KRA



# UNCLASSIFIED

Installations and an Army Hospital. AD-A088 260	Treatment at Military Installations to Prevent Scaling and Corrosion. AD-A087 266	Structures. AD-A080 057
*KRAYBILL, D. D. * * *	*KUMAR, ASHOK * * *	LAMPO, R. G. * * *
Development of Vault Toilet Waste Treatment Systems. AD-A056 831	Cathodic Protection of Civil Works Structures. AD-A080 057	Identification and Quantification of Hydrocarbon Products in Effluents. AD-A088 268
*KRAYBILL, DAN * * *	KUD, A. Y. * * *	LAMPO, RICHARD * * *
Sanitary Landfill Compactor Evaluation. AD-A067 697	Investigation of Rapidly Deployable Plastic Foam Systems. Volume II. Nonlinear Deformation and Local Buckling of Kevlar Fabric/Polyurethane Foam Composites. AD-A076 310	Preliminary Selection of Compatible Solvents for Vinyl Paints. AD-A067 708
KRAYBILL, DANIEL D. * * *	KUD, T. * * *	*LANE, N. D. * * *
Implementation of Resource Recovery Guidelines at Fort Meade, Fort Lewis, and Fort Sill. AD-A072 003	LIFE2 User's Manual. AD-A023 186	An Evaluation of Architectural Information Systems. AD-A001 616
KRUMDIECK, KEVIN * * *	Reliability Analysis for Airfield Lighting Systems. AD-A054 309	*LANE, R. * * *
Material, Design, and Construction Guidelines for Vertical Construction in Desert and Tropical Regions. AD-A057 957	*LACEY, R. M. * * *	Selection of Cooling Water Treatment at Military Installations to Prevent Scaling and Corrosion. AD-A087 266
*KUMAR, A. * * *	Compendium of Administrators of Land Use and Related Programs. AD-A057 226	*LANFORD, SAMUEL T. * * *
Application of Acoustic Emission to Weld Monitoring. AD-A003 992	LAM, P. C. * * *	An Interim Guide to Industrialized Building Systems. AD-A034 131
First Annual Inspection of Buzzards Bay Pillings. AD-A024 381	State of the Art in Fiber Optics Communications and Data Transfer. AD-A042 579	*LAPP, ROGER L. * * *
Coatings and Cathodic Protection of Pillings in Seawater: Results of 5- Year Exposure. AD-A038 B32	*LAMBA, H. S. * * *	Automated Design and Construction Progress Reporting Procedures. Volume I. AD- 771 178
Fracture Characteristics of Structural Steels: Reference Manual. AD-A072 054	The Effects of Clustered Porosity on the Shear Strength of A 514F Transverse Fillet Welds. AD-A034 662	Automated Design and Construction Progress Reporting Procedures. Volume II. AD-A012 727
Selection of Cooling Water * * *	LAMPO, R. * * *	Engineering and Design Performance Analysis. AD-A035 208
	Cathodic Protection of Civil Works * * *	

PERSONAL AUTHOR INDEX-22  
UNCLASSIFIED 099062

KRA-LAP

# UNCLASSIFIED

Automated Data Processing System (ADPS): Documentation Standards. AD-A056 089	LEE, S. W. Stationary Diesel Engine-Generator Set Acceptance Testing Procedures, Methods, and Instructions. AD-A037 545	Military Construction Progress Reporting System (AMPRS). AD-A018 716
LARSON, R. A. First Annual Summary of CAEADS development Activities. AD-A064 650	Stationary Gas Turbine-Generator Set Acceptance Testing Procedures, Methods, and Instructions. AD-A043 170	LEE, C. T. A Stochastic Network to Model Air Cargo Terminals. AD- 750 365
LAWRENCE, F. V. The Examination of Discontinuities in Welds by Stereoradiography. AD- 749 459	*LEV, OVADIA E. Preparation and Review of DD Form 1391. AD-A027 585	A Stochastic Network to Model Air Cargo Terminals. AD- 757 629
LAWRENCE, F. V., JR. The Introduction of Discontinuities in High Strength Steel Weldments. AD- 755 524	LEVERENZ, D. Fixed Facilities Energy Consumption Investigation -- Data Analysis. AD-A066 513	LEE, CHAO Development of a Standard Data Base and Computer Simulation Model for an Air Cargo Terminal. AD- 753 925
Effect of Lack of Penetration on Fatigue Resistance of High-Strength Structural Steel Welds. AD-A037 047	*LEVERENZ, D. J. EMP Evaluation of Junction Boxes, Junction-Box Covers, and Gaskets. AD-A010 631	*LEE, E. K. C. Information Storage and Retrieval System for Life Expectancy of Facilities. AD- 782 912
LAWRIE, LINDA The Building Loads Analysis and System Thermodynamics Program (BLAST). Release Number 1. AD-A056 226	Development and Evaluation of Repairs for EMP Leaks in Conduit Systems. AD-A011 223	Environmental Impact Computer System. AD- 787 295
The Automated Documentation System--User Manual. AD-A067 203	Results of RFI Testing of Safeguard Flexible Tunnel Section. AD-A011 225	*LEE, E. Y. S. Environmental Impact Computer System. AD- 787 295
LEBLANC, C. J. ADP Manual for the Automated Military Construction Progress Reporting System (AMPRS). AD-A018 437	EMP Shielding Properties of Conduit Systems and Related Hardware. AD-A012 729	*LEE, ESTHER K. C. Development of the Military Construction Data System (MCDS). Part I. AD-A000 710
Conversion Instructions for the Automated Military Construction Progress Reporting System (AMPRS). AD-A018 439	Predicting the Performance of Solar Energy Systems. AD-A035 608	LEE, M. Fuels: State of the Art in Industrial Utilization. AD-A063 239
Users Manual for the Automated	The Performance of an Experimental Solar Heating System. AD-A066 699	

PERSONAL AUTHOR INDEX-23  
UNCLASSIFIED 099062

ARS-LEV

# UNCLASSIFIED

LEVFRENZ, DONALD JAMES *** Design of Solar Heating and Cooling Systems. AD-A062 719	Lighting Systems. AD-A054 309	Acoustic Directivity Patterns for Army Weapons. AD-A066 223
LEWIS, T. A. *** Environmental Impact Assessment Study for Army Military Programs. AD- 771 062	Systems Approach to Life-Cycle Design of Pavements. Volume I. LIFE2 User's Manual. AD-A061 157	True-Integrating Environmental Noise Monitor and Sound-Exposure Level Meter. Volume III. Microprocessor Program and Data Interface Description. AD-A083 320
LIDRAL, ROBERT *** Supervision and Administration Cost/Rate Forecasting System. Volume I. User's Manual. AD-A053 229	*LINDOW, EDWARD S. *** Methodology for Establishing Equipment Utilization Standards. AD-A058 559	LITTLE, LINCOLN *** Rotary-Wing Aircraft Operational Noise Data. AD-A051 999
LIN, J. S. *** Field Evaluation of the Modular Augered-Bed Heat-Recovery Solid Waste Incinerator. AD-A054 707	Systems Approach to Life-Cycle Design of Pavements. Volume III. LIFE2 Program Listing. AD-A064 698	*LIU, J. W. S. *** A Survey of the Properties of Computer Communication Protocols. Volume II. Future Developments of Computer Network Protocols. AD-A061 647
Thermogravimetric Analysis of Solid Refuse-Derived Fuels and Coal. AD-A057 829	Built-Up Roof Construction Quality Control. AD-A073 619	LOTT, J. L. *** Polymer Impregnated Fibrous Cellular Concrete for BMD Facilities. AD- 767 531
Project Development Guidelines for Converting Army Installations to Coal Use. AD-A068 025	Earthmoving, Lifting, and Pulling Requirements for the Combat Engineer Vehicle (CEV). AD-B042 190L	*LOTT, JAMES *** Polymer Concrete-Reinforced Concrete Composite Beams. AD- 762 114
Production and Use of Densified Refuse-Derived Fuel (DRF) in Military Central Heat and Power Plants. AD-A082 773	The Blast Noise Prediction Program: User Reference Manual. AD-A074 050	*LOTT, JAMES L. *** Polymerized Lightweight Structural Elements. AD- 762 113
Densified Biomass as an Alternative Army Heating and Power Plant Fuel. AD-A083 317	LITTLE, L. M. *** The Statistics of Amplitude and Spectrum of Blasts Propagated in the Atmosphere Volume II. Appendices C through E. AD-A033 361	*LOZAR, CHARLES C. *** A Methodological Investigation of the Use of the Semantic Differential and Time-Lapse Photography to Measure Attitude and
*LINDOW, E. S. *** LIFE2 User's Manual. AD-A023 186	The Statistics of Amplitude and Spectrum of Blasts Propagated in the Atmosphere. Volume I. AD-A033 475	
Reliability Analysis for Airfield		

PERSONAL AUTHOR INDEX-24  
UNCLASSIFIED 099062

EVE-LO2

UNCLASSIFIED

- Behavior in a Dining Hall at  
Chanute AFB. (Evaluation of  
Occupant Interaction with Facility  
Environments).  
AD- 765 420
- Establishing Habitability Factors  
for the Design of Office  
Environments.  
AD-A056 463
- Developing Habitability Information  
for the Design of Office  
Environments.  
AD-A074 457
- \*LOZAR, ROBERT C. \* \* \*  
Data Requirements for Army Land Use  
Planning and Management.  
AN-A062 599
- \*LYBAS, JOHN M. \* \* \*  
Guidelines for Evaluating the  
Seismic Resistance of Existing  
Buildings.  
AD-A042 873
- Methods for Seismic Strengthening  
of Buildings.  
AD-A058 344
- MAGNINI, MICHAEL \* \* \*  
Changes in the Cost and  
Availability of Construction Labor.  
AD-A021 388
- MAGRINO, T. \* \* \*  
Densified Biomass as an Alternative  
Army Heating and Power Plant Fuel.  
AD-A083 317
- MAHON, D. \* \* \*  
Densified Biomass as an Alternative  
Army Heating and Power Plant Fuel.  
AD-A083 317
- MAHON, D. L. \* \* \*  
Production and Use of Densified  
Refuse-Derived Fuel (DRDF) in  
Military Central Heating and Power  
Plants.  
AD-A082 773
- MANN.  
Computer-Aided Engineering and  
Architectural Design System  
(CAEADS). Volume I. Summary.  
AD-A065 827
- \* \* \*  
Computer-Aided Engineering and  
Architectural Design System  
(CAEADS). Volume II. Concise  
Review.  
AD-A067 719
- MARK, JEFFREY S. \* \* \*  
Decor Guide for Enlisted Personnel  
Dining Facilities.  
AD-A003 828
- \* \* \*  
Decor Guide for Enlisted Personnel  
Dining Facilities.  
AD-A074 902
- MARSH, R. \* \* \*  
Production and Use of Densified  
Refuse-Derived Fuel (DRDF) in  
Military Central Heating and Power  
Plants.  
AD-A082 773
- MARTEL, C. \* \* \*  
Market Evaluation Study: Solar  
Heating and Domestic Hot Water  
Heating in OOD Buildings.  
AD-A042 178
- MARTIN, E. \* \* \*  
Optimization of Resource Allocation  
in Maintenance Management Logistics  
Systems.
- AD- 757 169
- MARTIN, ELMER C. \* \* \*  
Optimization of Resource Allocation  
in Maintenance Management Logistics  
Systems.  
AD- 750 386
- \*MARTIN, J. F. \* \* \*  
Cyclic Mechanical Tests and an  
Appropriate Analytical Stress-  
Strain Model for A36 Steel.  
AD- 780 802
- \*MARTINO, ANTHONY C. \* \* \*  
A Feasibility Study on the Use of  
Foam-in-Place Urethane Insulation  
in Masonry Cavity Walls.  
AD- 728 169
- MARVIN, E. \* \* \*  
User Manual for LIFE1 Computer  
Program.  
AD- 774 849
- \* \* \*  
Evaluation of Alternative Reroofing  
Systems.  
AD-A071 578
- \* \* \*  
Built-Up Roof Construction Quality  
Control.  
AD-A073 619
- MARVIN, E. L. \* \* \*  
LIFE2 User's Manual.  
AD-A023 186
- \*MARVIN, EUGENE L. \* \* \*  
Laplace Transform Inversion by  
Fourier Series Expansion.  
AD- 755 525
- \*MATHERLY, J. \* \* \*  
Evaluation of a Field-Type

PERSONAL AUTHOR INDEX-25  
UNCLASSIFIED 099062

LOZ-MAT

# UNCLASSIFIED

Incinerator for Human Waste (Theater of Operations Sewage Treatment Systems). AD- 740 490	*** Compilation of Operational Blast Noise Data. AD-A080 429	*** The Effects of Fast and Thermal Neutron Flux and Gamma Radiation on the Transmission Characteristics of Optical Fibers. AD-A042 429
Recommended Design Criteria for Wastewater Treatment at Proposed Consolidated Tactical Vehicle Wash Facility, Fort Drum, NY. AD-A042 629	*MCBRYAN, J. C. *** Noise in Dishwashing Rooms. AD-A028 921	*** State of the Art in Fiber Optics Communications and Data Transfer. AD-A042 579
In-Hardstand Tactical Vehicle Maintenance Facilities--Concept Design and Preliminary Recommendations for Wastewater Treatment. AD-A067 98E	*** Cost Effectiveness of Alternative Noise Reduction Methods for Construction of Family Housing. AD-A028 922	*** Potential Uses of Fiber Optics in Army Fixed Facilities. AD-A057 956
MATHERLY, J. E. *** An Economic Feasibility Study of Fayetteville, North Carolina, Treating Fort Bragg's Wastewater. AD- 758 152	*MCBRYAN, JOSEPH *** Predicting Noise Impact in the Vicinity of Small-Arms Ranges. AD-A062 718	*** Selection of Recommended Electromagnetic Interference/Radio Frequency Interference Shielding Effectiveness Test Procedures for Military Tactical Shelters. AD-B046 844L
Industrial Wastewaters, Red River Army Depot, Texarkana, Texas. AD- 778 162	MCCORMACK, R. *** Investigation of RF Coupling and Radiation Leakage Parameters of Some Typical Junction Box Circuitry Configurations. AD-A023 596	*** Fiber Optic Communications Link Performance in EMP and Intense Light Transient Environments. AD-A032 126
Vehicle Washing Operations and Wastewater Discharge, Fort Drum, NY - Findings and Recommendations. AD-A026 173	MCCORMACK, R. G. *** EMP Evaluation of Junction Boxes, Junction-Box Covers, and Gaskets. AD-A010 631	MCCORMACK, RAYMOND G. *** Development of Conduit Design Analytical Procedure. AD-A056 218
Water Usage Profile -- Fort Carson, CO. AD-A053 227	*** Development and Evaluation of Repairs for EMP Leaks in Conduit Systems. AD-A011 223	MCDOWELL, E. *** Facility Simulation Model for Advanced BMD Systems. Volume I. Executive Summary. AD-A009 743
MATTHEESSEN, W. *** Chloride Sensitivity of the Corrosion Rate of Zinc-Coated Reinforcing Bars. AD-A030 565	*** Results of RFI Testing of Safeguard Flexible Tunnel Section. AD-A011 225	*** Facility Simulation Model for Advanced BMD Systems. Volume IIA. Executive Control Module: User's Manual. AD-A009 744
MCBRYAN, J. *** User Manual for the Acquisition and Evaluation of Operational Blast Noise Data. AD- 782 911	*** EMP Shielding Properties of Conduit Systems and Related Hardware. AD-A012 729	*** Facility Simulation Model for Advanced BMD Systems. Volume IIB. Executive Control Module: Program

PERSONAL AUTHOR INDEX-26  
UNCLASSIFIED 099062

ATH-CDO

# UNCLASSIFIED

Reference Manual. AD-A009 745	AD-A011 227	Roads. AD-A018 953
Facility Simulation Model for Advanced BMD Systems. Volume IIC. Executive Control Module: Program Listing. AD-A009 746	Facility Simulation Model for Advanced BMD Systems. Volume IVC. Power Module: Program Listing. AD-A011 231	*MCNAMARA, JOHN F. * * *
Facility Simulation Model for Advanced BMD Systems. Volume IIIA. Structural Module: User's Manual. AD-A009 747	Facility Simulation Model for Advanced BMD Systems. Volume VC. HVAC/PC Module: Program Listing. AD-A011 232	Isotropic-Kinematic Hardening Model for Elastic-Plastic Cyclic Structural Analysis. AD-A014 945
Facility Simulation Model for Advanced BMD Systems. Volume IVB. Power Module: Program Reference Manual. AD-A009 748	Facility Simulation Model for Advanced BMD Systems. Volume VIII. Operational Manual. AD-A011 235	Numerical Solution Schemes for Highly Nonlinear Static Structural Behavior. AD-A016 985
Facility Simulation Model for Advanced BMD Systems. Volume VI: Miscellaneous Module. AD-A010 632	Facility Simulation Model for Advanced BMD Systems. Volume VII: Data Base. AD-A015 973	An Analytical Model for Determining Energy Dissipation in Dynamically Loaded Structures. AD-A017 040
Facility Simulation Model for Advanced BMD Systems. Volume IIC: Structural Module: Program Listing. AD-A010 713	*MCDOWELL, E. L. * * *	MCDOWELL, L. P. * * *
Facility Simulation Model for Advanced BMD Systems. Volume VA: HVAC/PC Module: User's Manual. AD-A010 714	A Generalized Kinematic Hardening Theory. AD- 785 652	A Stochastic Network to Model Air Cargo Terminals. AD- 750 365
Facility Simulation Model for Advanced BMD Systems. Volume VB: HVAC/PC Module: Program Reference Manual. AD-A010 715	Shipping Containers as Structural Systems. AD-A042 179	A Stochastic Network to Model Air Cargo Terminals. AD- 757 629
Facility Simulation Model for Advanced BMD Systems. Volume IIB. Structural Module: Program Reference Manual. AD-A011 226	MCMANUS, P. * * *	*MCNAMEE, LAWRENCE P. * * *
Facility Simulation Model for Advanced BMD Systems. Volume IVA. Power Module: User's Manual.	User Manual for LIFE1 Computer Program. AD- 774 849	Development of a Standard Data Base and Computer Simulation Model for an Air Cargo Terminal. AD- 753 925
	*MCMANUS, P. F. * * *	Computer Simulation and Validation of the Travis Freight Terminal Facility. AD- 759 486
	The Status of Development of a Maintenance Management System for Airfield Pavements. AD-A011 589	MECH, A. * * *
	LIFE2 User's Manual. AD-A023 186	Fixed Facilities Energy Consumption Investigation Data Users Manual. AD-A052 708
	*MCNAMARA, JAMES * * *	MECH, A. R. * * *
	Design Guidelines for Recreational	Fixed Facilities Energy Consumption

PERSONAL AUTHOR INDEX-27  
UNCLASSIFIED 099062

MCD-ECH

# UNCLASSIFIED

Investigation -- Data Analysis.  
AD-A066 513

MELIN, J. \* \* \*  
Evaluation of Projects for Counter-Seasonality Measures.  
AD- 771 909

MENDENHALL, \* \* \*  
Computer-Aided Engineering and Architectural Design System (CAEADS). Volume I. Summary.  
AD-A065 827

\* \* \*  
Computer-Aided Engineering and Architectural Design System (CAEADS). Volume II. Concise Review.  
AD-A067 719

MERRITT, R. \* \* \*  
Metallic Shear Walls for BMD Ground Support Systems.  
AD- 768 720

\*MERRITT, R. G. \* \* \*  
The Design of a Plastic Structural System (ILIR).  
AD-A011 224

\* \* \*  
Equivalent Viscous Damping of Elasto-Plastic Systems under Sinusoidal Loading.  
AD-A057 225

MERRITT, RON \* \* \*  
Cost Performance Analysis of Portland Cement Concrete-Fibrous Polyester Concrete Material System (Sandwich Panels).  
AD- 765 473

\*MERRITT, RONALD G. \* \* \*  
A Seismic Risk Simulation Model for Army Facilities: Phase One,

Development of Deterministic Model.  
AD-A043 173

MICKUNAS, M. D. \* \* \*  
A Survey of the Properties of Computer Communication Protocols. Volume II. Future Developments of Computer Network Protocols.  
AD-A061 647

MIDDLETON, G. \* \* \*  
Evaluation of Alternative Reroofing Systems.  
AD-A071 578

MIKUCKI, W. J. \* \* \*  
Disposal of Cleaning Debris.  
AD-A024 751

\* \* \*  
Disposal of Cleaning Debris.  
AD-A036 675

\* \* \*  
Fugitive Dust Emissions from Construction Haul Roads.  
AD-A037 048

\* \* \*  
Collecting Cost and Performance Data on Army New Air Pollution Control Equipment.  
AD-A043 171

\* \* \*  
Management of Reservoir Cleaning and Cleaning Debris.  
AD-A057 366

\* \* \*  
Identification and Quantification of Hydrocarbon Products in Effluents.  
AD-A088 268

\* \* \*  
Water Management Modifications for Acetic Anhydride Manufacture at Holston Army Ammunition Plant.  
AD-B031 250L

MIKUCKI, WALTER \* \* \*  
Tertiary Treatment of Wastewater

Using a Rotating Biological Contactor System.  
AD-A082 502

\*MIKUCKI, WALTER J. \* \* \*  
Plastic Pipe for Interior and Exterior Cold Water Distribution Systems.  
AD- 763 902

\* \* \*  
Theater of Operations Water Supply--Feasibility of Manufacturing and Using Plastic Pipe in the Theater of Operations.  
AD- 769 600

\* \* \*  
Migration of Explosives and Chlorinated Pesticides in a Simulated Sanitary Landfill.  
AD-A030 453

\* \* \*  
Improved Collection and Container-Washing Systems for Solid Waste Management at Army Installations.  
AD-A054 935

MITCHELL, G. \* \* \*  
Implementation of Resource Recovery Guidelines at Fort Meade, Fort Lewis, and Fort Sill.  
AD-A072 003

MITCHELL, R. \* \* \*  
Development of the Economic Impact Forecast System (EIFS)--the Multiplier Aspects.  
AD-A057 936

MITCHELL, R. A. \* \* \*  
The Economic Impact Forecast System: Description and User Instructions.  
AD-A027 139

MITCHELL, RALPH A. \* \* \*  
Computer-Aided Environmental Impact

PERSONAL AUTHOR INDEX-28  
UNCLASSIFIED 099062

ELI-ITC

# UNCLASSIFIED

\*MOORE, NICHOLAS R. \* \* \*  
The Feasibility of a Storable  
Propellant Turbine/High-Speed  
Alternator as a Compact Short-Life  
Power System for Hardened Ballistic  
Missile Defense (BMD)  
Installations.  
AD-A024 786

\*MORROW, T. H., JR. \* \* \*  
DEVELOPMENT STUDY FOR A VFR  
HELIPORT STANDARD LIGHTING SYSTEM.  
AD- 710 982

MORSE, D. \* \* \*  
Inflation/Foam/Shotcrete System for  
Rapid Shelter Construction.  
AD-A010 789

\*MORSE, D. C. \* \* \*  
Corrosion Behavior of Steel Fibrous  
Concrete.  
AD-A041 339

MORSE, DAVID C. \* \* \*  
Use of Fly Ash and High-Strength  
Reinforcing Bars in Military  
Construction.  
AD-A045 186

\* \* \*  
Rapid Construction for Hardening  
Above-Ground Facilities to Small  
Arms Fire.  
AD-A054 306

\* \* \*  
Schedule 40 Polyvinyl Chloride Pipe  
for Army Theater of Operations  
Construction.  
AD-A056 300

MOY, J. B. \* \* \*  
Tract Level Socioeconomic Data  
System (TRACT) User Manual.  
AD-A058 825

\*MOORE, A. \* \* \*  
A Site Selection Procedure for  
Military Family Housing.  
AD-A028 387

\* \* \*  
Site Concept Plan Development  
Manual for Family Housing.  
AD-A034 167

\* \* \*  
Development of Guidelines for the  
Army Timber Harvesting Program.  
AD-A071 637

\*MOORE, ALAN \* \* \*  
Design Guidelines for Recreational  
Roads.  
AD-A018 953

\*MOORE, R. C. \* \* \*  
Design Criteria for Theater of  
Operations Glued-Laminated Timber  
Highway Bridges. Volume I.  
AD-A035 687

\* \* \*  
Design Criteria for Theater of  
Operations Glued-Laminated Timber  
Highway Bridges. Volume II.  
Appendices A-E.  
AD-A035 688

\*MOORE, A. \* \* \*  
A Site Selection Procedure for  
Military Family Housing.  
AD-A028 387

\*MOORE, A. W. \* \* \*  
Site Concept Plan Development  
Manual for Family Housing.  
AD-A034 167

\* \* \*  
Development of Guidelines for the  
Army Timber Harvesting Program.  
AD-A071 637

\*MOORE, ALAN \* \* \*  
Design Guidelines for Recreational  
Roads.  
AD-A018 953

\*MOORE, ROBERT E. \* \* \*  
Roofing Repair Materials for Korean  
Relocatable Buildings - Test and  
Evaluation.  
AD-A085 188

MUNSE, W. H. \* \* \*  
Design Criteria for Theater of  
Operations Steel Highway Bridges.  
Volume I.  
AD-A035 763

\* \* \*  
Design Criteria for Theater of  
Operations Steel Highway Bridges.  
Volume II. Appendices A-I.  
AD-A035 779

MOYER, CHRISTOPHER A. \* \* \*  
Study on the Potential Use of  
Industrialized Building for the  
Department of the Army. Volume I:  
Summary.  
AD- 732 853

\* \* \*  
Study on the Potential Use of  
Industrialized Building for the  
Department of the Army. Volume II:  
Narrative.  
AD- 732 854

\* \* \*  
Study on the Potential Use of  
Industrialized Building for the  
Department of the Army. Volume  
III: Appendices.  
AD- 732 855

MUIR, WAYNE \* \* \*  
An Investigation of Techniques for  
Achieving Exposed Aggregate  
Surfaces for Site-Cast Concrete.  
AD-A012 110

MULLEN, T. \* \* \*  
Hazardous Waste Surveys of Two Army  
Installations and an Army Hospital.  
AD-A088 260

\*MUNCY, ROBERT E. \* \* \*  
Roofing Repair Materials for Korean  
Relocatable Buildings - Test and  
Evaluation.  
AD-A085 188

MUNSE, W. H. \* \* \*  
Design Criteria for Theater of  
Operations Steel Highway Bridges.  
Volume I.  
AD-A035 763

\* \* \*  
Design Criteria for Theater of  
Operations Steel Highway Bridges.  
Volume II. Appendices A-I.  
AD-A035 779

PERSONAL AUTHOR INDEX-29  
UNCLASSIFIED 099062

MOH-UNS



# UNCLASSIFIED

MUNTNER, M. S. * * *	Surfaces for Site-Cast Concrete.	AD- 771 909
Directional Transformations in Steel - Alloy Development.	AD-A012 110	NEATHAMMER, R. D. * * *
*MURPHREE, E. LILE, JR * * *	Fracture Mechanics Applicability to Portland Cement Concretes.	AD- 766 725
Airfield Pavement Systems.	AD- 750 356	Attitudes and Preferences of Occupants of Military Family Housing Communities. Volume I. Executive Digest.
AD- 724 132	NAY, J. L. * * *	AD- 777 769
*NAPIER, T. R. * * *	Consolidation of RPMA at Fayetteville, NC. Volume II. Summary Cost Analysis for Consolidation of RPMA in the Fayetteville, NC Area.	Army Family Housing: Preferences and Attitudes About Housing Interiors. Volume I. Methodology and General Results. Preferences of Occupants in Military Family Housing.
Site Concept Plan Development Manual for Family Housing.	AD-A030 518	AD-A007 133
AD-A034 167	Consolidation of RPMA at Fayetteville, NC. Volume III. Cost Analysis Support and Backup Data for the Consolidation of RPMA in the Fayetteville, NC Area.	Army Family Housing: Preferences and Attitudes about Housing Interiors. Volume II. Preferences.
*NAUS, D. J. * * *	AD-A030 519	AD-A007 741
Fracture Mechanics Applicability to Portland Cement Concretes.	NAY, JOYCE L. * * *	Army Family Housing: Preferences and Attitudes About Housing Interiors. Volume III: Predictors of Satisfaction with Housing Interiors.
AD- 757 630	Consolidation of RPMA at Fayetteville, N. C. Volume I. Executive Summary for the Study of Consolidation of RPMA in the Fayetteville, N. C. Area.	AD-A011 187
Resin Bound Aggregate Material Systems.	AD-A033 754	*NEATHAMMER, ROBERT D. * * *
AD-A014 141	Consolidation of RPMA at Fayetteville, NC. Volume IV. General Procedures for Conducting RPMA Consolidation Studies.	Engineering and Design Cost/Rate Forecasting System. Volume II. User's Manual.
Ballistics Tests of Fibrous Concrete Dome and Plate Specimens.	AD-A041 331	AD-A061 108
AD-A025 209	Total Contract Maintenance for Mannheim Family Housing.	Engineering and Design Cost/Rate Forecasting System. Volume I. Model Development and Data Analysis.
NAUS, DAN * * *	AD-A080 609	AD-A061 127
Polymer Concrete-Reinforced Concrete Composite Beams.	Housing Maintenance Contract Guide.	*NEELY, E. * * *
AD- 762 114	AD-A084 539	Construction Equipment Cost Guide.
Cost Performance Analysis of Portland Cement Concrete-Fibrous Polyester Concrete Material System (Sandwich Panels).	NEATHAMMER, R. * * *	AD-A016 788
AD- 765 473	Evaluation of Projects for Counter-Seasonality Measures.	* * *
Mechanical Behavior of Viscoelastic Materials.	PERSONAL AUTHOR INDEX-30	
AD- 772 895	UNCLASSIFIED 099062	
*NAUS, DANIEL J. * * *		
An Investigation of Techniques for Achieving Exposed Aggregate		

UNT-NEE

UNCLASSIFIED

Construction Equipment Cost Guide. Volume 1. AD-A064 924	Facilities--Skill Report. AD-A028 380	Computer-Aided Environmental Impact Analysis for Mission Change, Operations and Maintenance, and Training Activities: User Manual. AD-A022 698
Construction Equipment Cost Guide. Volume 2. AD-A064 925	NIELSEN, P. Investigation of RF Coupling and Radiation Leakage Parameters of Some Typical Junction Box Circuitry Configurations. AD-A023 596	NOVAK, E. W. Computer-Aided Environmental Impact Analysis for Construction Activities: User Manual. AD-A008 988
*NEELY, EDGAR S., JR. Specification Preparation Methods-- State of the Art. AD-A016 919	NIELSEN, P. H. EMP Evaluation of Junction Boxes, Junction-Box Covers, and Gaskets. AD-A010 631	Environmental Protection Guidelines for Construction Contract Specification Writers. AD-A014 146
Construction Cost Engineering and Computation State of the Art, 1973. AD-A022 656	Development and Evaluation of Repairs for EMP Leaks in Conduit Systems. AD-A011 223	Environmental Noise Impact Analysis for Army Military Activities: User Manual. AD-A047 969
Construction Specification Preparation within the EDITSPEC system. AD-A045 183	Results of RFI Testing of Safeguard Flexible Tunnel Section. AD-A011 225	Computer-Aided Environmental Impact Analysis for Army Real Estate Actions: User Manual. AD-A068 746
*NELSON, D. An Economic Feasibility Study of Fayetteville, North Carolina, Treating Fort Bragg's Wastewater. AD- 758 152	EMP Shielding Properties of Conduit Systems and Related Hardware. AD-A012 729	NOVAK, EDWARD W. Field Use of the Environmental Impact Computer System, AD-A056 406
*NELSON, D. L. Sanitary Landfill. AD- 773 714	Radio Frequency Shielding Tests of System Technology Test Facility at Meck Island, Marshall Islands. AD-A041 450	Computer-Aided Environmental Impact Analysis for Industrial, Procurement, and Research, Development, Test, and Evaluation Activities: User Manual. AD-A056 997
NELSON, D. N. Technical Evaluation Study Solid Waste Generation and Disposal Red River Army Depot, Texarkana, Texas. AD- 779 509	*NIELSEN, PAUL Electromagnetic Shielding of Structures. AD- 776 367	Guidelines for Review of EA/EIS documents. AD-A089 976
NELSON, R. Engineer Unit Days Computer Program (UNDAY) - User's Manual. AD-A072 001	Development of Conduit Design Analytical Procedure. AD-A056 218	*O'CONNER, MICHAEL J. Computer-Aided Final Design Cost Estimating System Overview. AD-A040 119
NELSON, ROBERT R. Construction Scheduling of AFCS	Analysis of a Nonlinear Electromagnetic Field Penetration Problem, AD-A056 424	

PERSONAL AUTHOR INDEX-31  
UNCLASSIFIED 099062

NEE-O'C

# UNCLASSIFIED

- \*O'CONNOR, M. J. \* \* \*  
Modifications Processing  
Procedures: A Generalized  
Stochastic Network Model.  
AD-A043 717
- \*O'CONNOR, MICHAEL J. \* \* \*  
A Preliminary Concept for a Design  
Criteria Management System.  
AD-A032 125
- \* \* \*  
Military Construction Engineering  
and Design Cost Forecasts.  
AD-A035 262
- \* \* \*  
Military Construction Supervision  
and Administration Cost Forecasts.  
AD-A040 742
- \* \* \*  
Supervision and Administration  
Cost/Rate Forecasting System.  
Volume I. User's Manual.  
AD-A053 229
- \* \* \*  
Preliminary Investigations of Risk  
Sharing in Construction Contracts.  
AD-A054 299
- \* \* \*  
Construction Contract Risk  
Assignment.  
AD-A071 623
- OLSSON, T. \* \* \*  
Investigation of Techniques for the  
Rapid Preparation of Painted Wood  
Surfaces.  
AD-A064 813
- ORTIZ, L. \* \* \*  
Development of the Economic Impact  
Forecast System (EIFS)--the  
Multiplier Aspects.  
AD-A057 936
- \*PACE, GEORGE M. \* \* \*  
Serviceability of Repairs to Rigid  
Pavement.  
AD- 870 723L
- PAERSSON, JAN \* \* \*  
Proceedings of the CIB W-65 Working  
Commission on Organization and  
Management of Construction. Volume  
III. International Council for  
Building Research and Documentation  
and Dissemination.  
AD-A051 438
- PANAK, J. J. \* \* \*  
The Effects of Gear Pattern on  
Pavement Systems Performance.  
AD-A048 250
- \*PANANOS, WILLIAM J. \* \* \*  
An Introduction to Technological  
Forecasting.  
AD- 755 523
- \* \* \*  
Technological Forecasting: A Case  
Study of Long-Term Requirements for  
Rigid Airfield Pavement Systems.  
AD- 767 530
- PARSONS, GUY A. \* \* \*  
Development of Guidelines for the  
Army Timber Harvesting Program.  
AD-A071 637
- PATZER, J. \* \* \*  
Computer-Aided Environmental  
Legislative Data System (CELDS).  
User Manual.  
AD-A061 126
- PATZER, J. G. \* \* \*  
Modification and Extension of the  
Environmental Technical Information  
System (ETIS) for the Air Force.  
AD-A079 441
- \*PAWLOWSKA, V. \* \* \*  
The Blast Noise Prediction Program:  
User Reference Manual.  
AD-A074 050
- PAWLOWSKA, VIOLETTA I. \* \* \*  
Hypothetical Case Studies of  
Operational Changes to Reduce Noise  
Levels.  
AD-A055 066
- PENHOFF, STEN \* \* \*  
Proceedings of the CIB W-65 Working  
Commission on Organization and  
Management of Construction. Volume  
III. International Council for  
Building Research and Documentation  
and Dissemination.  
AD-A051 438
- PERKINS, DAVID M. \* \* \*  
Guidelines for Developing Design  
Earthquake Response Spectra.  
AD-A012 728
- \*PFEISTER, J. L. \* \* \*  
The User Requirements for an  
Airfield Pavement System.  
AD- 753 927
- \* \* \*  
Attitudes and Preferences of  
Occupants of Military Family  
Housing Communities. Volume I.  
Executive Digest.  
AD- 777 769
- \*PLUMMER, F. B., JR. \* \* \*  
A New Look at Structural Energy  
Dissipation.  
AD- 780 801
- PLUMMER, FRED \* \* \*  
Cost Performance Analysis of  
Portland Cement Concrete-Fibrous  
Polyester Concrete Material System

PERSONAL AUTHOR INDEX-32  
UNCLASSIFIED 099062

O'C-LUM

UNCLASSIFIED

(Sandwich Panels). AD- 765 473	Facility Information for: U.S. Army Tactical Vehicle Organizational and Support Maintenance. AD-A083 683	Real Estate Cost Estimating Techniques for PL 91-646 Relocation Costs. AD-A075 511
POLIN, G. M.      * * *	Developing Facility Information for Combat Equipment Group -- Europe (CEGE) Sites. AD-A084 717	POSKUS, ULDIS R.      * * *
Analysis of Real Estate Status Reporting Procedures. AD-A062 720	Decor Guide for Enlisted Personnel Dining Facilities. AD-A003 828	Automated Design and Construction Progress Reporting Procedures. Volume I. AD- 771 178
POLLOCK, M. J.      * * *	Decor Guide for Commissary Store Facilities. AD-A023 972	Computer-Based Specifications: Cost Analysis Study. AD- 786 551
Evaluation of Instrumentation for Testing Large Generator Sets. AD-A050 169	Developing Habitability Information for the Design of Office Environments. AD-A074 467	Automated Design and Construction Progress Reporting Procedures. Volume II. AD-A012 727
Procedures for Collection of Reliability, Availability, and Maintainability Data on Electrical and Mechanical Systems. AD-A064 657	Decor Guide for Enlisted Personnel Dining Facilities. AD-A074 902	Reference Manual for the Automated Military Progress Reporting System (AMPRS). AD-A018 438
PONN, C. P. C.      * * *	Habitability Improvements for Aircraft Carrier Messdecks. AD-A078 422	Technological Forecast: Changes in Availability and Cost of Construction Materials for Military Construction. AD-A020 951
Tertiary Treatment of Wastewater Using a Rotating Biological Contactor System. AD-A082 502	*POSKUS, K. K.      * * *	Changes in the Cost and Availability of Construction Labor. AD-A021 388
*PORTE, H. A.      * * *	Industrialized Building Construction Time/Cost Model - First Quarter FY 76 Results. AD-A023 750	*PREISER, WOLFGANG      * * *
A Stochastic Network to Model Air Cargo Terminals. AD- 750 365	User Evaluation of the Fort Knox Industrialized BOQ (Bachelor Officers' Quarters) Project. AD-A030 092	Programming for Habitability: Symposium Proceedings. AD-A034 135
Industrial Wastewaters, Red River Army Depot, Texas. AD- 778 162	*POSKUS, U. R.      * * *	PRENDERGAST, J.      * * *
*PORTE, HOWARD A.      * * *	Civil Works Construction Cost Index System (CWCCIS). AD-A048 102	Study of Articulated Concrete Revetment Mattress: Test and Analysis - Results of FY 1974 Program. AD-A021 774
Activity Networks to Model Transportation Systems Subject to Facility Constraints. AD- 757 628	*PORTER, ROBERT      * * *	Study of Articulated Concrete
A Stochastic Network to Model Air Cargo Terminals. AD- 757 629		
*PORTER, ROBERT      * * *		

PERSONAL AUTHOR INDEX-33  
UNCLASSIFIED 099062

OLI-REN

# UNCLASSIFIED

- Revetment Mattress: Test and Analysis--Results of FY 1975 Program.  
AD-A033 440
- \*PRENDERGAST, J. D. \* \* \*  
Concept Development for Structures on Expansive Soils by the Pattern Language Design Methodology.  
AD-A017 045
- \* \* \*  
Three-Dimensional Seismic Structural Analysis of Letterman Hospital.  
AD-A022 085
- \* \* \*  
Seismic Structural Design/Analysis Guidelines for Buildings.  
AD-A037 747
- \* \* \*  
Development and Use of Seismic Shock Test Criteria for Essential Equipment in Critical Facilities.  
AD-A068 295
- \*PRENDERGAST, JAMES D. \* \* \*  
Probabilistic Concept for Gravity Dam Analysis.  
AD-A073 802
- \* \* \*  
Current and Tentative Seismic Design Provisions for Buildings: Preliminary Comparisons.  
AD-A075 204
- \*PRICE, EDDIE \* \* \*  
Polymer Impregnated Fibrous Cellular Concrete for GMC Facilities.  
AD- 767 531
- \*PRIITSKER, A. ALAN B. \* \* \*  
Documentation of Extended Analysis and Planning Subroutines for Onsite Management Records System (OMRS) - September 1972.  
AD- 769 599
- PUTNAM, D. E. \* \* \*  
Interagency/Intergovernmental Coordination for Environmental Planning (IICEP): Systems Considerations.  
AD-A085 991
- PUTNAM, DAN \* \* \*  
Preliminary Analysis of Computer-Aided Environmental Baseline Information System (CEBIS). Phase I. System Requirements.  
AD-B046 908L
- \*QUATTRONE, R. \* \* \*  
Directional Transformations in Steel - Alloy Development.  
AD- 748 408
- \* \* \*  
Metallic Shear Walls for BMD Ground Support Systems.  
AD- 768 720
- \* \* \*  
Directional Transformation in Steel - Texture Behavior and Martensite Morphology.  
AD- 771 906
- \*QUATTRONE, ROBERT \* \* \*  
Feasibility of Producing Directionally Transformed Martensite in Steel.  
AD- 729 660
- QUINRY, G. E. \* \* \*  
Technical Evaluation Study: Solid Waste Heat Reclamation at Naval Air Test Center Patuxent, Md.  
AD-A015 613
- RADZIMINSKI, J. B. \* \* \*  
The Introduction of Discontinuities in High Strength Steel Weldments.  
AD- 755 524
- \*RAMSSON, R. \* \* \*  
Trends in the Real Prices of Selected Construction Products and Materials, 1946-1976.  
AD-A053 228
- RAMSSON, R. E. \* \* \*  
Development of Guidelines for the Army Timber Harvesting Program.  
AD-A071 637
- \*RASPET, RICHARD \* \* \*  
Mitigation of Noise Impact via Operational Changes.  
AD-A074 480
- REESOR, DORIS J. \* \* \*  
Housing Maintenance Contract guide.  
AD-A084 539
- \*REYNOLDS, R. \* \* \*  
A Site Selection Procedure for Military Family Housing.  
AD-A028 387
- \*RICE, J. L. \* \* \*  
Stabilization for Pavements.  
AD- 763 912
- \* \* \*  
Development of a Design Manual for Concrete Floor Slabs on Grade.  
AD- 773 715
- \* \* \*  
Stabilization for Pavements.  
AD- 892 386L
- \* \* \*  
The Effects of Gear Pattern on Pavement Systems Performance.  
AD-A048 250
- \*RICE, JOHN L. \* \* \*  
Keyed Joint Performance Under Heavy Load Aircraft.  
AD- 766 706

PERSONAL AUTHOR INDEX-34  
UNCLASSIFIED 099062

PRE-RIC

# UNCLASSIFIED

- \* \* \*  
Nondestructive Testing of Concrete Pavements: Equipment Evaluation.  
AD- 907 397L
- \* \* \*  
Fibrous Concrete Pavement Design Summary.  
AD-A012 731
- \*RICHARDS, J. L. \* \* \*  
An Integrated Approach to Construction Management.  
AD- 770 374
- \*RIGGINS, R. \* \* \*  
Computer-Aided Environmental Impact Analysis for Mission Change, Operations and Maintenance, and Training Activities: User Manual.  
AD- 22 698
- RIGGINS, R. E. \* \* \*  
Computer-Aided Environmental Impact Analysis for Construction Activities: User Manual.  
AD-A008 988
- \* \* \*  
Environmental Protection Guidelines for Construction Contract Specification Writers.  
AD-A014 146
- \* \* \*  
Computer-Aided Environmental Impact Analysis for Air Force Base Realignment Activities: User Manual.  
AD-A027 431
- \* \* \*  
Water Quality Data for Army Military Installations.  
AD-A067 253
- \* \* \*  
Graphic Materials to Support Biophysical Quantitative Environmental Impact Analysis-- Sources of Existing Materials.  
AD-A069 097
- \* \* \*  
Effects of Tracked Vehicle Activity on Terrestrial Mammals, Birds, and Vegetation at Fort Knox, KY.  
AD-A073 782
- \* \* \*  
Ecological Baseline, Fort Hood, Texas.  
AD-A088 271
- \*RIGGINS, ROBERT E. \* \* \*  
Environmental Protection Guidelines for the Resident Engineer.  
AD-A012 109
- \* \* \*  
Computer-Aided Environmental Impact Analysis for Industrial, Procurement, and Research, Development, Test, and Evaluation Activities: User Manual.  
AD-A036 997
- \* \* \*  
Basic Analytical Model for Environmental Impact Assessment of Surface Water Resources--DOSAG User Manual.  
AD-A069 977
- \* \* \*  
Aquatic Rational Threshold Value (RTV) Concepts for Army Environmental Impact Assessment.  
AD-A073 032
- \* \* \*  
Environmental Information Acquisition and Maintenance Techniques: Reference Guide.  
AD-A089 136
- \*RIGO, H. G. \* \* \*  
An Extended Evaluation of a Particulate Precipitating Heat Transfer Surface.  
AD- 770 395
- \* \* \*  
Technical Evaluation Study, Solid Waste Generation and Disposal, Watervliet Arsenal, Watervliet, N.Y.  
AD- 772 893
- \* \* \*  
Technical Evaluation Study: Solid Waste Heat Reclamation at Naval Air Test Center Patuxent, Md.  
AD-A015 613
- \* \* \*  
Technical Evaluation Study: Energy-Recovery Solid Waste Incineration to Naval Station Mayport, Florida.  
AD-A015 615
- \* \* \*  
Technical Evaluation Study: Solid Waste Heat Reclamation at Philadelphia Naval Shipyard, Philadelphia, Pa.  
AD-A015 616
- \* \* \*  
Use of Refuse as a Fuel at Fort Monmouth, NJ.  
AD-B003 456
- RINEHART, WILBUR A. \* \* \*  
Guidelines for Developing Design Earthquake Response Spectra.  
AD-A012 728
- ROBERTS, J. \* \* \*  
Erection Procedures for Prefabricated Expandable Foam/Wood Structures.  
AD-A027 382
- ROBERTUS, J. \* \* \*  
Field Experiment on a Prefabricated Expandable Foam/Wood Structure.  
AD-A032 726
- ROLFE, S. T. \* \* \*  
Design Criteria for Theater of Operations Steel Highway Bridges, Volume I.  
AD-A035 763

PERSONAL AUTHOR INDEX-35  
UNCLASSIFIED 099062

RIC-OLF

# UNCLASSIFIED

Design Criteria for Theater of Operations Steel Highway Bridges. Volume II. Appendices A-I. AD-A035 779	RYAN, T. C. ** * Selection and Design Criteria for the Army Facilities Components System. AD-779 511
ROOD, E. A. ** * ADP Manual for the Automated Military Construction Progress Reporting System (AMPRS). AD-A018 437	A Heuristic Model for Predicting Bridge Construction Requirements. AD-782 913
Conversion Instructions for the Automated Military Construction Progress Reporting System (AMPRS). AD-A018 439	Evaluation System for Proposed Theater of Operations Structures. Volume III: User's Manual. AD-A006 145
Users Manual for the Automated Military Construction Progress Reporting System (AMPRS). AD-A018 716	Evaluation System for Proposed Theater of Operations Structures. Volume II. Technical Report. AD-A006 495
*ROOD, OMAR E., JR. ** * Guidance for Selection of Equipment Fleet. AD-770 927	Blocks to Effective Technology Transfer in Construction. AD-A069 586
Significance Ranking of Changes in the Building Industry. AD-A003 991	*SADOFF, LAURENCE R. ** * Field Participation in CAEADS. AD-A042 665
Material Handling Equipment for Commissary Warehouses. AD-A027 385	SANDERS, W. W., JR. ** * Design Criteria for Theater of Operations Glued-Laminated Timber Highway Bridges. Volume I. AD-A035 687
Material Handling Equipment Selection Guide for Commissary Warehouses. AD-A027 386	Design Criteria for Theater of Operations Glued-Laminated Timber Highway Bridges. Volume II. Appendices A-E. AD-A035 688
Preliminary Investigations of Risk Sharing in Construction Contracts. AD-A054 299	Design Criteria for Theater of Operations Steel Highway Bridges. Volume I. AD-A035 763
ROSENDAHL, EUGENE ** * Construction-Site Noise Control Cost-Benefit Estimation Technical Background. AD-A050 813	Design Criteria for Theater of Operations Steel Highway Bridges. Volume II. Appendices A-I.
ROSENDAHL, R. ** * Construction-Site Noise Control Cost-Benefit Estimating Procedures. AD-A051 737	
ROSENFELD, M. ** * Evaluation of Alternative Reroofing Systems. AD-A071 578	
*ROSENFELD, M. J. ** * Technical Evaluation Study of the Consolidated Field Maintenance Facility at Fort Bragg, N.C. AD-772 894	
Built-Up Roof Construction Quality Control. AD-A073 619	
*ROSENFELD, MYER J. ** * Evaluation of Load-Indicating Devices (LIDS) for Mobile Construction Cranes. AD-A032 569	
*ROSS, ANNE H. ** * Access to the Military Construction Data System (MCDS): A User's Manual. AD-A024 141	
ROZANSKI, FRANCINE M. ** * Development of an Installation Surfaced Area Maintenance and Repair Management System. AD-A017 328	
Pavement Inspection Reference Manual. AD-A017 329	
Automated Pavement Maintenance and Repair Management System. AD-A042 582	

PERSONAL AUTHOR INDEX-36  
UNCLASSIFIED 099062

00D-AND

# UNCLASSIFIED

- AD-A035 779  
SCHANCHE, G.      \* \* \*  
Evaluation of Alternatives for  
Restoring the South Boiler House at  
Joliet AAP to High-Sulfur-Coal  
Burning Capability.  
AD-A069 374
- SCHANCHE, G. W.      \* \* \*  
Cost of Recycling Waste Material  
from Family Housing.  
AD-A045 421
- \*SCHANCHE, GARY W.      \* \* \*  
Installation Solid Waste Survey  
Guidelines.  
AD-A019 879
- \* \* \*  
Air Pollution Survey Guidelines for  
Army Installations.  
AD-A029 633
- \* \* \*  
Water/Wastewater Survey Guidelines.  
AD-A033 223
- \* \* \*  
Pollution Estimation Factors.  
AD-A033 753
- \*SCHNEIDER, RICHARD L.      \* \* \*  
Effective Use of Systems Building  
Technology: Open Systems Catalog.  
Volume II. Prototype Performance  
Specifications.  
AD-A040 757
- \*SCHNITIGRUND, G. D.      \* \* \*  
Bonding between Cement Hydrates and  
Steel.  
AD-A021 651
- SCHNITIGRUND, GARY      \* \* \*  
An Evaluation of the Fracture of  
Plain Concrete, Fibrous Concrete,  
and Mortar Using the Scanning
- Electron Microscope.  
AD-A007 742
- \*SCHOMAKER, NORBERT B.      \* \* \*  
Burma Soils. A Study of the  
Effects of Lime and Cement on Paddy  
and Laterite Material.  
AD- 720 993
- SCHOMER, P.      \* \* \*  
Technical Evaluation Study of the  
Consolidated Field Maintenance  
Facility at Fort Bragg, N.C.  
AD- 772 894
- \* \* \*  
User Manual for the Acquisition and  
Evaluation of Operational Blast  
Noise Data.  
AD- 732 911
- \* \* \*  
Noise Levels in U.S. Army Corps of  
Engineers Powerhouses.  
AD-A058 545
- \*SCHOMER, P. D.      \* \* \*  
Construction Noise: Specification,  
Control, Measurement, and  
Mitigation.  
AD-A010 629
- \* \* \*  
Environmental Protection Guidelines  
for Construction Contract  
Specification Writers.  
AD-A014 146
- \* \* \*  
Noise in Dishwashing Rooms.  
AD-A028 921
- \* \* \*  
Cost Effectiveness of Alternative  
Noise Reduction Methods for  
Construction of Family Housing.  
AD-A028 922
- \* \* \*  
Technical Background: Interim  
Criteria for Planning Rotary-Wing  
Aircraft Traffic Patterns, and  
Siting Noise-Sensitive Land Uses.  
AD-A031 449
- \* \* \*  
User Manual: Interim Procedure for  
Planning Rotary-Wing Aircraft  
Traffic Patterns and Siting Noise-  
Sensitive Land Uses.  
AD-A031 450
- \* \* \*  
The Statistics of Amplitude and  
Spectrum of Blasts Propagated in  
the Atmosphere Volume II.  
Appendices C through E.  
AD-A033 361
- \* \* \*  
The Statistics of Amplitude and  
Spectrum of Blasts Propagated in  
the Atmosphere. Volume I.  
AD-A033 475
- \* \* \*  
Analysis of Environmental Noise  
Monitors.  
AD-A040 005
- \* \* \*  
Construction-Site Noise Control  
Cost-Benefit Estimating Procedures.  
AD-A051 737
- \* \* \*  
True-Integrating Environmental  
Noise Monitor and Sound Exposure  
Level Meter. Volume I. User's  
Guide.  
AD-A060 958
- \* \* \*  
Acoustic Directivity Patterns for  
Army Weapons.  
AD-A066 223
- \*SCHOMER, PAUL D.      \* \* \*  
Predicting Community Response to  
Blast Noise.  
AD- 773 690
- \* \* \*  
Construction-Site Noise Control  
Cost-Benefit Estimation Technical  
Background.  
AD-A050 813
- \* \* \*  
Rotary-Wing Aircraft Operational  
Noise Data.  
AD-A051 999

PERSONAL AUTHOR INDEX-37  
UNCLASSIFIED 099062

CHA-SCH



# UNCLASSIFIED

- True-Integrating Environmental:  
Noise Monitor and Sound Exposure  
Level Meter. Volume II. Wiring and  
Parts Lists, Parts Layouts, and  
Schematics.  
AD-A072 002
- SCOTT, J. \* \* \*  
Fracture Characteristics of  
Structural Steels: Reference  
Manual.  
AD-A072 054
- SCOTT, J. K. \* \* \*  
Bonding between Cement Hydrates and  
Steel.  
AD-A021 651
- An Investigation of the  
Susceptibility of Post-Tensioning  
Cables to Stress-Corrosion  
Cracking.  
AD-A035 258
- Fracture Characteristics of Two  
High-Strength, Low-Alloy and Two  
Stainless Steels.  
AD-A035 629
- Fracture Characteristics of ASTM A-  
607 Pipe-Line Steel, ASTM A-516  
Structural Steel, and ASTM B-209,  
Aluminum Alloys 5083 and 6061.  
AD-A055 520
- SEUM, CHARLES S. \* \* \*  
Documentation of Extended Analysis  
and Planning Subroutines for Onsite  
Management Records System (OMRS) -  
September 1972.  
AD- 769 599
- \*SEVALL, GEORGE W., JR \* \* \*  
Nondestructive Testing of  
Construction Materials and  
Operations.  
AD- 774 847
- \*SEVERINGHAUS, W. D. \* \* \*  
Effects of Tracked Vehicle Activity  
on Terrestrial Mammals, Birds, and  
Vegetation at Fort Knox, KY.  
AD-A073 782
- Ecological Baseline, Fort Hood,  
Texas.  
AD-A088 271
- \*SEVERINGHAUS, WILLIAM D. \* \* \*  
Guidelines for Terrestrial  
Ecosystem Survey.  
AD-A086 526
- SEVY, BRUCE \* \* \*  
Use of 'Ideal' Ratings as a  
Standard for Evaluating Facilities.  
AD-A058 570
- \*SHAHIN, MAHAMED Y. \* \* \*  
Pavement Inspection Reference  
Manual.  
AD-A017 329
- \*SHAHIN, MOHAMED Y. \* \* \*  
Pavement Functional Condition  
Indicators.  
AD-A007 152
- Development of an Installation  
Surfaced Area Maintenance and  
Repair Management System.  
AD-A017 328
- Automated Pavement Maintenance and  
Repair Management System.  
AD-A042 582
- Development of a Pavement  
Maintenance Management System.  
Volume I. Airfield Pavement  
Condition Rating.  
AD-A048 884
- Development of a Pavement
- Maintenance Management System.  
Volume II. Maintenance and Repair  
Guidelines for Airfield Pavements.  
AD-A056 575
- Development of a Pavement  
Maintenance Management System.  
Volume III. Maintenance and Repair  
Guidelines for Airfield Pavements.  
AD-A056 575
- Development of a Pavement  
Maintenance Management System.  
Volume V. Proposed Revision of  
Chapter 3, AFR 93-5.  
AD-A058 860
- Development of a Pavement  
Maintenance Management System.  
Volume IV. Appendices A through I.  
Maintenance and Repair Guidelines  
for Airfield Pavements.  
AD-A060 883
- Development of a Pavement  
Maintenance Management System.  
Rating Procedure for Roads,  
Streets, and Parking Lots. Volume  
I. Conditions Rating Procedure.  
AD-A074 170
- Development of a Pavement  
Maintenance Management System.  
Rating Procedure for Roads,  
Streets, and Parking Lots. Volume  
II. Distress Identification Manual.  
AD-A074 171
- SHANNON, E. \* \* \*  
The Rational Threshold Value (RTV)  
Technique for the Evaluation of  
Regional Economic Impacts.  
AD-A055 561
- SHANNON, EWA \* \* \*  
The Economic Impact Forecast  
System: Description and User

PERSONAL AUTHOR INDEX-38  
UNCLASSIFIED 099062

COT-HAN

# UNCLASSIFIED

Instructions. AD-A027 139	*SINGH, VIKHOD V. * * * User Evaluation of CERL Air, Water/Wastewater, and Solid Waste Survey Guidelines. AD-A061 123	SMITH, A. * * * Inflation/Foam/Shotcrete System for Rapid Shelter Construction. AD-A040 789
*SHARMA, S. K. * * * A Plasticity Formulation for Cyclic Inelastic Structural Analysis. AD-A036 473	SKARSETH, R. * * * ADP Manual for the Automated Military Construction Progress Reporting System (AMPRS). AD-A018 437	* * * Prefabricated Expandable Foam/Wood Structures for Theater of Operations. AD-A044 991
SHARMA, SUSHIL K. * * * Isotropic-Kinematic Hardening Model for Elastic-Plastic Cyclic Structural Analysis. AD-A014 945	* * * Conversion Instructions for the Automated Military Construction Progress Reporting System (AMPRS). AD-A018 439	*SMITH, ALVIN * * * Fire/Flammability Test of Polyurethane Foams and Protective Coatings. AD-A028 386
An Analytical Model for Determining Energy Dissipation in Dynamically Loaded Structures. AD-A017 040	* * * Users Manual for the Automated Military Construction Progress Reporting System (AMPRS). AD-A018 716	* * * Effects of Temperature Cycling on Selected Conductive Flooring. AD-A029 409
An Analytical Model for Uniaxial Cyclic Inelastic Behavior of Reinforced Concrete. AD-A024 910	SLIWINSKI, B. * * * Fixed Facilities Energy Consumption Investigation Data Users Manual. AD-A052 708	* * * Compatibility Study of Conductive Flooring. AD-A029 410
Dynamic Response of Reinforced Concrete Structures. AD-A056 627	SLIWINSKI, B. J. * * * Fixed Facilities Energy Consumption Investigation Initial Energy Data. AD-A051 074	* * * Comparison of Selected Conductive Polyolefin and Lead Floorings. AD-A033 757
*SIEBER, D. C. * * * The Effects of Fast and Thermal Neutron Flux and Gamma Radiation on the Transmission Characteristics of Optical Fibers. AD-A042 429	* * * Fixed Facilities Energy Consumption Investigation -- Data Analysis. AD-A066 513	* * * Investigation of Plastic Pipe for Use by the Corps of Engineers. AD-A042 313
SIEBER, DAVID * * * Development of Conduit Design Analytical Procedure. AD-A056 218	* * * Investigation of Methods to Predict Thermal Stratification and its Effect on Solar Energy System Performance. AD-A086 051	* * * Dome Shelter Construction with Polyurethane Foam. AD-A044 992
SIEBER, DAVID C. * * * Fiber Optic Communications Link Performance in EMP and Intense Light Transient Environments. AD-A032 126	* * * Investigation of Methods to Predict Thermal Stratification and its Effect on Solar Energy System Performance. AD-A018 086	* * * Feasibility of Structural Foam/Concrete Building for Theater of Operations Use. AD-A053 272
		* * * Construction with Field Moldable Polyurethane Foam Blocks. AD-A054 440
		* * * Schedule 40 Polyvinyl Chloride Pipe for Army Theater of Operations Construction. AD-A058 300

PERSONAL AUTHOR INDEX-39  
UNCLASSIFIED 099062

SHA-SMI

UNCLASSIFIED

<p>***            Damaged Building Repair with Polyurethane Foam.            AD-A057 435</p> <p>***            Durability and Fire-Spread Aspects of Plastic Pipe Systems.            AD-A073 031</p> <p>***            Foam Overhead Cover Support (FOCOS) System for Dismounted and Mounted TOW positions.            AD-A075 746</p> <p>***            Investigation of Rapidly Deployable Plastic Foam Systems. Volume II. Nonlinear Deformation and Local Buckling of Kevlar Fabric/Polyurethane Foam Composites.            AD-A076 310</p> <p>***            Investigation of Rapidly Deployable Plastic Foam Systems. Volume I. System Development.            AD-A076 332</p> <p>***            Development of a Composite Material for Construction of Antenna Element Radomes.            AD-B020 359L</p> <p>***            Fabrication and Testing of a Composite Material Radome.            AD-B023 059L</p> <p>***            Advanced Development Tests of a Composite Material for Antenna Element Radomes.            AD-B036 607L</p> <p>SMITH, E. D.</p> <p>Cost of Recycling Waste Material from Family Housing.            AD-A045 421</p> <p>***            Pollution Abatement Management System--Concept Definition.            AD-A055 565</p>	<p>*SMITH, EDGAR D. ***            Concept Definition for the Problems Data Base Component of the Water Pollution Abatement Subsystem of the Pollution Abatement Management System (PAMS).            AD-A072 397</p> <p>***            Aquatic Rational Threshold Value (RTV) Concepts for Army Environmental Impact Assessment.            AD-A073 032</p> <p>***            Tertiary Treatment of Wastewater Using a Rotating Biological Contacter System.            AD-A082 502</p> <p>SMITH, M.</p> <p>***            Implementation of Resource Recovery Guidelines at Fort Meade, Fort Lewis, and Fort Sill.            AD-A072 003</p> <p>*SONNENBURG, P. N. ***            Liquid-Spring Shock Isolator Modeling.            AD-A044 993</p> <p>***            Development and Use of Seismic Shock Test Criteria for Essential Equipment in Critical Facilities.            AD-A068 295</p> <p>*SONNENBURG, PAUL N. ***            Fragility Data Analysis and Testing Guidelines for Essential Equipment Used in Critical Facilities.            AD-A038 768</p> <p>*SDWELL, E. ***            The Building Loads Analysis System Thermodynamics (BLAST) Program, Version 2.0: Input Booklet.            AD-A072 435</p>	<p>STACEY, G. S. ***            Handbook for Environmental Impact Analysis.            AD-A006 241</p> <p>*STAHL, CHARLES S. ***            Air Cargo Support Facilities for Army Airlift Operations.            AD- 762 551</p> <p>STAMAS, G. D. ***            Real Estate Cost Estimating Techniques for PL 91-646 Relocation Costs.            AD-A075 511</p> <p>STARK, ROBERT M. ***            Development of an Installation Surfaced Area Maintenance and Repair Management System.            AD-A017 328</p> <p>STAUB, M. ***            Recommended Design Criteria for Wastewater Treatment at Proposed Consolidated Tactical Vehicle Wash Facility, Fort Drum, NY.            AD-A042 629</p> <p>STAUB, M. J. ***            Water Usage Profile -- Fort Carson, CO.            AD-A053 227</p> <p>STAWARZ, S. P. ***            Real Estate Cost Estimating Techniques for PL 91-646 Relocation Costs.            AD-A075 511</p> <p>STELLHORN, WILLIAM H. ***            Preparation and Review of DD Form 1391.</p>
---	--	--

PERSONAL AUTHOR INDEX-40  
 UNCLASSIFIED 099062

MIT-TEL

# UNCLASSIFIED

AD-A027 585  
 \*STELLHORN, WILLIAM H. \* \* \*  
 Development of the Military Construction Data System (MCDS). Part II.  
 AD-A024 938

\*STOCKDALE, WILLIAM K. \* \* \*  
 Modal Analysis Methods in Seismic Design for Buildings.  
 AD-A012 732

\* \* \*  
 Seismic Design Methods for Military Facilities -- Preliminary Recommendations.  
 AD-A027 384

STROMAN, W. R. \* \* \*  
 Structures on Expansive Soils.  
 AD- 779 510

\* \* \*  
 Concept Development for Structures on Expansive Soils by the Pattern Language Design Methodology.  
 AD-A017 045

STRUSS, S. \* \* \*  
 Evaluation of Alternatives for Restoring the South Boiler House at Joliet AAP to High-Sulfur-Coal Burning Capability.  
 AD-A069 374

\*STRUSS, S. R. \* \* \*  
 Fugitive Dust Emissions from Construction Haul Roads.  
 AD-A037 048

\* \* \*  
 Collecting Cost and Performance Data on Army New Air Pollution Control Equipment.  
 AD-A043 171

\* \* \*  
 Development of Vault Toilet Waste Treatment Systems.

AD-A050 031  
 STUKEL, JAMES J. \* \* \*  
 Fume Emissions from Coal-Tar Pitch.  
 AD-A022 844

\*SUDDATH, L. P. \* \* \*  
 Load-Deflection Behavior of Lime-Stabilized Layers.  
 AD-A006 015

\*SUDDATH, LOVICK P. \* \* \*  
 Lime-Cement Combination Stabilization.  
 AD- 762 552

\*TAKEMORI, E. M. \* \* \*  
 Stationary Diesel Engine-Generator Set Acceptance Testing Procedures, Methods, and Instructions.  
 AD-A037 545

\* \* \*  
 Stationary Gas Turbine-Generator Set Acceptance Testing Procedures, Methods, and Instructions.  
 AD-A043 170

\*TAKEMORI, EDWARD M. \* \* \*  
 Procedures for Collection of Reliability, Availability, and Maintainability Data on Electrical and Mechanical Systems.  
 AD-A064 657

TERKONDA, P. K. \* \* \*  
 AIRMOD--A General Program for the Rapid Assessment of Airborne Pollutants.  
 AD-A058 569

THOMAS, S. E. \* \* \*  
 Computer-Aided Environmental Impact Analysis for Army Real Estate Actions: User Manual.

AD-A068 746  
 \*THOMAS, SUSAN E. \* \* \*  
 Computer-Aided Environmental Impact Analysis for Air Force Research, Development, Test and Evaluation Activities: User Manual.  
 AD-A039 132

\* \* \*  
 Computer-Aided Environmental Impact Analysis for Industrial, Procurement, and Research, Development, Test, and Evaluation Activities: User Manual.  
 AD-A056 997

THOMPSON, BRUCE \* \* \*  
 Military Construction Supervision and Administration Cost Forecasts.  
 AD-A040 742

THOMPSON, M. R. \* \* \*  
 Load-Deflection Behavior of Lime-Stabilized Layers.  
 AD-A006 015

THURBER, LEE \* \* \*  
 Reference Manual for the Automated Military Progress Reporting System (AMPRS).  
 AD-A018 438

\*TIETZ, L. \* \* \*  
 Evaluation System for Proposed Theater of Operations Structures. Volume I. Executive Summary.  
 AD-A006 014

TIETZ, L. C. \* \* \*  
 Evaluation System for Proposed Theater of Operations Structures. Volume III: User's Manual.  
 AD-A006 145

\*TOBE, Y.

PERSONAL AUTHOR INDEX-41  
 UNCLASSIFIED 099062

STE-108

# UNCLASSIFIED

- AD- 771 062      \* \* \*  
Handbook for Environmental Impact Analysis.  
AD-A006 241
- AD- 757 169      \* \* \*  
Effect of Lack of Penetration on Fatigue Resistance of High-Strength Structural Steel Welds.  
AD-A037 047
- \*TRENT, R. L.      \* \* \*  
Optimization of Resource Allocation in Maintenance Management Logistics Systems.  
AD- 757 169
- \* \* \*  
Erection Procedures for prefabricated Expandable Foam/Wood Structures.  
AD-A027 382
- \* \* \*  
Field Experiment on a Prefabricated Expandable Foam/Wood Structure.  
AD-A032 726
- \* \* \*  
Prefabricated Expandable Foam/Wood Structures for Theater of Operations.  
AD-A044 991
- \*TRENT, ROBERT L.      \* \* \*  
Optimization of Resource Allocation in Maintenance Management Logistics System 3.  
AD- 750 386
- \* \* \*  
Documentation of Extended Analysis and Planning Subroutines for Onsite Management Records System (OMRS) - September 1972.  
AD- 759 599
- TRENT, R.      \* \* \*  
Project Development Guidelines for Converting Army Installations to Coal Use.  
AD-A068 025
- URBAN, L. V.      \* \* \*  
Environmental Impact Assessment Study for Army Military Programs.
- AD- 771 062      \* \* \*  
Handbook for Environmental Impact Analysis.  
AD-A006 241
- Computer-Aided Environmental Impact Analysis for Construction Activities: User Manual.  
AD-A008 988
- \* \* \*  
A Review and Analysis of Environmental Impact Assessment Methodologies.  
AD-A013 359
- VALOSKI, M. P.      \* \* \*  
A Practical Application of Community Noise Analyses -- Case Study of Allegheny County, Pennsylvania.  
AD-A038 232
- \*VAN WERINCH, J.      \* \* \*  
Computer-Aided Environmental Legislative Data System (CELDS). User Manual.  
AD-A061 126
- \* \* \*  
Modification and Extension of the Environmental Technical Information System (ETIS) for the Air Force.  
AD-A079 441
- VARGA, L.      \* \* \*  
Development of a Design Manual for Concrete Floor Slabs on Grade.  
AD- 773 715
- VENEKLASSEN, W. D.      \* \* \*  
Literature Research on Living, Working, and Training Facility Environments.  
AD-A059 058
- The Role of Habitability Information in Post-occupancy
- AD- 771 062      \* \* \*  
Evaluation.  
AD-A068 024
- VENEKLASSEN, WAYNE D.      \* \* \*  
A Prototype Procedure for the Local Generation of Facility Requirements.  
AD-A043 172
- \* \* \*  
Use of 'Ideal' Ratings as a Standard for Evaluating Facilities.  
AD-A058 570
- \* \* \*  
The Job Activities Description (JAD) Questionnaire: An Analysis of Time Spent on and Importance of Managerial Duties.  
AD-A074 175
- \*VOGEL, R. S.      \* \* \*  
Identification and Quantification of Hydrocarbon Products in Effluents.  
AD-A088 268
- \*VOKAC, THOMAS J.      \* \* \*  
Automated Scheduling of Maintenance Events: Status of Fitzsimons Hospital Study.  
AD- 772 896
- WALTON, G.      \* \* \*  
Interim Feasibility Assessment Method for Solar Heating and Cooling of Army Buildings.  
AD-A026 588
- WALTON, G. N.      \* \* \*  
Predicting the Performance of Solar Energy Systems.  
AD-A035 608
- WALTON, GEORGE      \* \* \*  
Market Evaluation Study: Solar Domestic Water Heaters for DOD

PERSONAL AUTHOR INDEX-42  
UNCLASSIFIED 099062

TRE-ALT

AD-A099 036

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN IL F/G 13/2  
USACERL REPORT BIBLIOGRAPHY.(U)

DEC 80

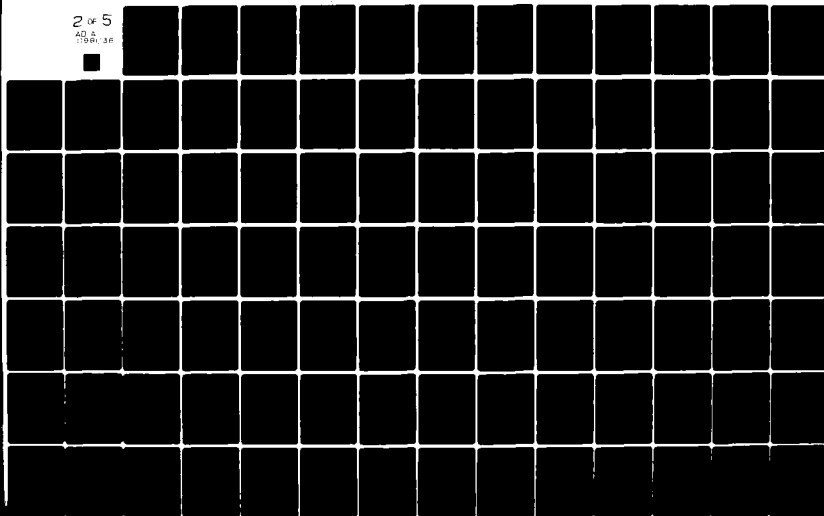
UNCLASSIFIED

CERL-0-3

NL

2 of 5

AD-A  
11999-30



barracks. AD-A036 479	* * *	Determination of the Effect of Current and Travel Speed of Gas Metal-Arc Welding on the Mechanical Properties of A36, A516, and A514 Steels. AD-A085 342	* * *	WEBER, R. A.	AD-A058 569	The Economic Impact Forecast System: Description and User Instructions. AD-A027 139
Investigation of the Interrelationship between Direct, Diffuse, and Total Solar Radiation. AD-A072 986	* * *	Method for Estimating Solar Heating and Cooling System Performance, AD-A026 041	* * *	WALTON, GEORGE N.	AIRMOD--A General Program for the Rapid Assessment of Airborne Pollutants. AD-A058 569	
Design of Solar Heating and Cooling Systems. AD-A062 719	* * *	Investigation of Rapidly Deployable Plastic Foam Systems. Volume II. Nonlinear Deformation and Local Buckling of Kevlar Fabric/Polyurethane Foam Composites. AD-A076 310	* * *	WANG, S. S.	The Baseline Information System-- User's Manual. AD-A069 324	
Directional Transformations in Steel - Alloy Development. AD- 748 408	* * *	Directional Transformation in Steel-- Texture Behavior and Martensite Morphology. AD- 771 906	* * *	WEBER, R. A.	Concept Definition for the Problems Data Base Component of the Water Pollution Abatement Subsystem of the Pollution Abatement Management System (PAMS). AD-A072 397	
Feasibility of Producing Directionally Transformed Martensite in Steel. AD- 729 660	* * *	Feasibility of Producing Directionally Transformed Martensite in Steel. AD- 729 660	* * *	WEBER, R. A.	Interactive Environmental Impact Computer System (EICS) User Manual. AD-A074 890	
Development of a Weld Quality Monitor. AD-A027 644	* * *	Development of a Weld Quality Monitor. AD-A027 644	* * *	WEBER, R. A.	An Analysis of Military Migration in the United States. AD-A076 552	
					Local Economic Consequences Study (LECS) Preliminary User Manual. AD-A088 261	
					WEBSTER, RONALD D.	
					Pollution Abatement Management System--Concept Definition. AD-A055 565	
					Development of the Economic Forecast System (EIFS)--th- Multiplier Aspects. AD-A057 936	
					Tract Level Socioeconomic Data System (TRACT) User Manual. AD-A058 825	
					Clearinghouse Information System: Description and User Instructions. AD-A059 178	

PERSONAL AUTHOR INDEX-43  
UNCLASSIFIED 099062

**Q3A-17A**

UNCLASSIFIED

\*WEBSTER, RONALD DWIGHT \* \* \*  
The Rational Threshold Value (RTV) Technique for the Evaluation of Regional Economic Impacts.  
AD-A055 561

\* \* \*  
Economic Impact Forecast System, Version 2.0: User's Manual.  
AD-A073 667

\* \* \*  
Modification and Extension of the Environmental Technical Information System (ETIS) for the Air Force.  
AD-A079 441

\* \* \*  
Interagency/Intergovernmental Coordination for Environmental Planning (IICEP): Systems Considerations.  
AD-A085 991

\*WEBSTER, RON D. \* \* \*  
Preliminary Analysis of Computer-Aided Environmental Baseline Information System (CEBIS). Phase I. System Requirements.  
AD-B046 908L

WEISBERG, M. W. \* \* \*  
True-Integrating Environmental Noise Monitor and Sound Exposure Level Meter. Volume I. User's Guide.  
AD-A060 958

\* \* \*  
True-Integrating Environmental Noise Monitor and Sound Exposure Level Meter. Volume II. Wiring and Parts Lists, Parts Layouts, and Schematics.  
AD-A072 002

WELSH, R. \* \* \*  
Computer-Aided Environmental Legislative Data System (CELDS). User Manual.  
AD-A061 126

WELSH, R. L. \* \* \*  
Development of the Environmental Technical Information System.  
AD-A009 668

\* \* \*  
The Economic Impact Forecast System: Description and User Instructions.  
AD-A027 139

\* \* \*  
AIRMED--A General Program for the Rapid Assessment of Airborne Pollutants.  
AD-A058 569

\*WELSH, RYKKI L. \* \* \*  
System Documentation for Computer-Aided Environmental Legislative Data System.  
AD-A061 158

WENDLER, B. H. \* \* \*  
Liquid-Spring Shock Isolator Modeling.  
AD-A044 993

WENDLER, BRUCE H. \* \* \*  
Evaluation of Load-Indicating Devices (LIDS) for Mobile Construction Cranes.  
AD-A032 569

\* \* \*  
Evaluation of Load-Bearing Honeycomb Core Sandwich Panels.  
AD-A033 755

WEST, B. \* \* \*  
Production and Use of Densified Refuse-Derived Fuel (DRDF) in Military Central Heating and Power Plants.  
AD-A082 773

WHITESIDE, T. M. \* \* \*  
Erection Procedures for

Prefabricated Expandable Foam/Wood Structures.  
AD-A027 382

\* \* \*  
Field Experiment on a Prefabricated Expandable Foam/Wood Structure.  
AD-A032 726

\* \* \*  
Prefabricated Expandable Foam/Wood Structures for Theater of Operations.  
AD-A044 991

\* \* \*  
A Family of Components for the Wood Panelized Prefabricated Building System.  
AD-A065 659

WILLIAMSON, G. R. \* \* \*  
Fibrous Concrete - Construction Material for the Seventies (May 1-3, 1972).  
AD- 756 384

\* \* \*  
Technical Information Pamphlet on Use of Fibrous Concrete (Applicability of Fibrous Concrete for Military Facilities).  
AD- 761 077

\* \* \*  
An Investigation of Techniques for Achieving Exposed Aggregate Surfaces for Site-Cast Concrete.  
AD-A012 110

\* \* \*  
Technical Information Pamphlet on Fibrous Concrete Overlays--Fort Hood Project.  
AD-A015 469

\* \* \*  
Ballistics Tests of Fibrous Concrete Dome and Plate Specimens.  
AD-A025 209

\* \* \*  
Inflation/Foam/Shotcrete System for Rapid Shelter Construction.  
AD-A040 789

\* \* \*  
Corrosion Behavior of Steel Fibrous Concrete.

PERSONAL AUTHOR INDEX-44  
UNCLASSIFIED 099062

WEB-ILL



UNCLASSIFIED

AD-A041 339

\*WILLIAMSON, GILBERT R. \* \* \*

Compression Characteristics and  
Structural Beam Design Analysis of  
Steel Fiber Reinforced Concrete.  
AD- 771 908

Steel Fibers as Web Reinforcement  
in Reinforced Concrete.  
AD-A056 496

WILLIAMSON, GIL R. \* \* \*

Rapid Construction for Hardening  
Above-Ground Facilities to Small  
Arms Fire.  
AD-A054 306

WILLIAMSON, R. BRADY \* \* \*

Durability and Fire-Spread Aspects  
of Plastic Pipe Systems.  
AD-A073 031

\*WILLMER, J. \* \* \*

User Manual for LIFE1 Computer  
Program.  
AD- 774 849

WILLMER, J. L. \* \* \*

Computer Program for the Finite  
Element Analysis of Concrete  
Airfield Pavements.  
AD- 771 160

\*WINDINGLAND, L. \* \* \*

Fixed Facilities Energy Consumption  
Investigation Data Users Manual.  
AD-A052 708

Fixed Facilities Energy Consumption  
Investigation -- Data Analysis.  
AD-A066 513

\*WINDINGLAND, L. M. \* \* \*

Market Evaluation Study: Solar  
Heating and Domestic Hot Water  
Heating in DOD Buildings.  
AD-A042 178

Fixed Facilities Energy Consumption  
Investigation Initial Energy Data.  
AD-A051 074

An Analysis of Electrical  
Consumption at Representative Army  
Installations.  
AD-A085 298

\*WINDINGLAND, LARRY \* \* \*

Market Evaluation Study: Solar  
Domestic Water Heaters for DOD  
barracks.  
AD-A036 479

WINDINGLAND, LARRY M. \* \* \*

Comparison of Building Loads  
Analysis and System Thermodynamics  
(BLAST) Computer Program  
Simulations and Measured Energy Use  
for Army Buildings.  
AD-A085 573

Parametric Analysis of Energy  
Consumption in Army Buildings by  
the Building Loads Analysis and  
System Thermodynamics (BLAST)  
computer Program.  
AD-A089 406

WINE, J. C. \* \* \*

Optimization of Resource Allocation  
in Maintenance Management Logistics  
Systems.  
AD- 757 169

WINE, JACK C., SR. \* \* \*

Optimization of Resource Allocation  
in Maintenance Management Logistics  
Systems.  
AD- 750 386

\*WITTNER, D. E. \* \* \*

Coatings and Cathodic Protection of  
Pillings in Seawater: Results of 5-  
Year Exposure.  
AD-A038 832

WONG, WILLIAM \* \* \*

Development of the Military  
Construction Data System (MCDS).  
Part II.  
AD-A024 938

\*WOODHEAD, R. W. \* \* \*

Proceedings, Allerton Park  
Conference on Systems Approach to  
Airfield Pavements, 23-26 March  
1970 (Rational Pavement Design).  
AD- 763 212

WOODHEAD, RONALD W. \* \* \*

Airfield Pavement Systems.  
AD- 724 132

WOODYARD, J. P. \* \* \*

Technical Evaluation Study: Solid  
Waste as a Fuel at Ft. Bragg, N. C.  
AD-A034 416

WORATZECK, M. \* \* \*

Inflation/Foam/Shotcrete System for  
Rapid Shelter Construction.  
AD-A040 789

Inflation/Foam/Shotcrete System for  
Rapid Construction of Circular  
Arches.  
AD-A069 878

WORATZECK, MICHAEL \* \* \*

Fabrication and Testing of a  
Composite Material Radome.  
AD-8023 059L

\*WORREL, EDWARD J. \* \* \*

PERSONAL AUTHOR INDEX-45  
UNCLASSIFIED 099062

WIL-WOR

UNCLASSIFIED

Language Design Methodology.  
AD-A017 045  
YOUNG, V. T. \* \* \*  
Environmental Information  
Acquisition and Maintenance  
Techniques: Reference Guide.  
AD-A089 136  
ZIEGLER, L. N. \* \* \*  
Advanced Development Tests of a  
Composite Material for Antenna  
Element Radomes.  
AD-B036 607L

\* \* \*  
A Systems Approach to Construction  
of Recreational Area Facilities  
Volume II. Request for Technical  
Proposal and Evaluation  
Documentation.  
AD-A038 594  
\* \* \*  
A Systems Approach to Construction  
of Recreational Area Facilities.  
Volume I. Program Methodology.  
AD-A039 363  
\*WORRELL, EDWARD J., III  
\* \* \*  
Development of Heuristic Procedures  
to Analyze the Production-  
Transportation Problem.  
AD-A016 984  
\*WORRELL, EDWARD J.  
\* \* \*  
Evaluation of Load-Bearing  
Honeycomb Core Sandwich Panels.  
AD-A033 755  
WORTMAN, R. H. \* \* \*  
Proceedings, Allerton Park  
Conference on Systems Approach to  
Airfield Pavements, 23-26 March  
1970 (Rational Pavement Design).  
AD- 763 212  
WORTMAN, ROBERT H.  
\* \* \*  
Airfield Pavement Systems.  
AD- 724 132  
WU, K. H. \* \* \*  
A Study of the Technical  
Feasibility of Developing a  
Standardized Energy Control System  
Specifically for Army Facilities.  
AD-A044 455  
YOUNG, G. E. \* \* \*  
Concept Development for Structures  
on Expansive Soils by the Pattern

PERSONAL AUTHOR INDEX-46  
UNCLASSIFIED 099062

WDR-180

## UNCLASSIFIED

## REPORT NUMBER INDEX

AFCC-TR-77-17 AD-A042 628	CEEDO-IR-77-44-VOL-5 AD-A058 860	CERL-IR-D-69 AD-A030 091
AFESC/ESL-TR-80-1 AD-B046 844L	CERL-CP-M-128 AD-A009 702	CERL-IR-D-80 AD-A043 172
AFWL-TR-69-51 AD- 870 723L	CERL-IR-A-23 AD- 771 178	CERL-IR-E-52 AD-A009 668
AFWL-TR-71-79 AD- 890 034L	CERL-IR-A-23-VOL-2 AD-A012 727	CERL-IR-E-61 AD-A023 244
AFWL-TR-71-99 AD- 892 386L	CERL-IR-ADS-2 AD-A033 363	CERL-IR-E-72 AD-A014 146
AFWL-TR-71-141 AD- 894 873L	CERL-IR-C-45 AD-A044 991	CERL-IR-E-77 AD-A024 751
AFWL-TR-71-142 AD- 894 275L	CERL-IR-C-50 AD-A032 726	CERL-IR-E-94 AD-A032 126
AFWL-TR-72-149 AD- 757 208	CERL-IR-C-52 AD-A027 382	CERL-IR-E-98 AD-A035 608
AFWL-TR-74-154 AD-A011 589	CERL-IR-C-74 AD-A032 124	CERL-IR-E-106 AD-A040 743
ARLCD-TR-77073 AD-B031 260L	CERL-IR-C-75 AD-A035 208	CERL-IR-E-108 AD-A040 744
AROD-I-465.1-E AD- 762 194	CERL-IR-C-79 AD-A042 582	CERL-IR-E-110 AD-A042 578
CEEDO-TR-77-35-VOL-2 AD-A048 982	CERL-IR-D-13 AD- 771 062	CERL-IR-E-111 AD-A042 579
CEEDO-TR-77-38 AD-A055 095	CERL-IR-D-31 AD- 785 551	CERL-IR-E-112 AD-A042 429
CEEDO-TR-77-44-VOL-1 AD-A048 884	CERL-IR-D-40 AD-A000 711	CERL-IR-E-115 AD-A044 813
CEEDO-TR-77-44-VOL-2 AD-A049 029	CERL-IR-D-41 AD-A001 616	CERL-IR-E-117 AD-A044 455
CEEDO-TR-77-44-VOL-3 AD-A056 575	CERL-IR-D-66 AD-A023 750	CERL-IR-E-120 AD-A051 074
CEEDO-TR-77-44-VOL-4 AD-A060 883	CERL-IR-D-68 AD-A029 661	CERL-IR-E-127 AD-A052 708

REPORT NUMBER INDEX-1  
UNCLASSIFIED 099062

UNCLASSIFIED

CERL-IR-E-129 AD-A055 095	CERL-IR-M-184 AD-A027 384	CERL-IR-N-9 AD-A031 449
CERL-IR-E-130-VOL-1 AD-A055 560	CERL-IR-M-190 AD-A030 314	CERL-IR-N-10 AD-A031 450
CERL-IR-E-143 AD-A066 513	CERL-IR-M-191 AD-A030 565	CERL-IR-N-16 AD-A036 675
CERL-IR-E-144 AD-A066 699	CERL-IR-M-200 AD-A035 629	CERL-IR-N-26 AD-A042 629
CERL-IR-E-145 AD-A065 457	CERL-IR-M-202 AD-A036 473	CERL-IR-N-34 AD-A053 227
CERL-IR-E-146 AD-A068 024	CERL-IR-M-222 AD-A045 184	CERL-IR-N-36 AD-A051 737
CERL-IR-E-148 AD-A068 025	CERL-IR-M-227 AD-A045 185	CERL-IR-N-44 AD-A055 066
CERL-IR-E-157 AD-A074 175	CERL-IR-M-232 AD-A057 148	CERL-IR-N-45 AD-A054 935
CERL-IR-E-161 AD-A085 573	CERL-IR-M-234 AD-A056 218	CERL-IR-N-47 AD-A056 831
CERL-IR-E-163 AD-A085 298	CERL-IR-M-247 AD-A058 559	CERL-IR-N-51 AD-A058 545
CERL-IR-M-32 AD- 768 720	CERL-IR-M-248 AD-A063 213	CERL-IR-N-52 AD-A058 569
CERL-IR-M-97 AD- 784 055	CERL-IR-M-249 AD-A058 344	CERL-IR-N-55 AD-A062 599
CERL-IR-M-115 AD-A005 046	CERL-IR-M-251 AD-A058 129	CERL-IR-N-60 AD-A066 223
CERL-IR-M-117 AD-A003 992	CERL-IR-M-254 AD-A056 727	CERL-IR-N-61 AD-A062 718
CERL-IR-M-168 AD-A027 383	CERL-IR-M-263 AD-A071 578	CERL-IR-N-67 AD-A067 985
CERL-IR-M-172 AD-A024 381	CERL-IR-M-275 AD-A078 626	CERL-IR-N-73 AD-A072 397
CERL-IR-M-183 AD-A027 644	CERL-IR-N-3 AD-A028 922	CERL-IR-N-75 AD-A074 050

REPORT NUMBER INDEX-2  
UNCLASSIFIED 099062

CER-CER

UNCLASSIFIED

CERL-IR-N-88 AD-8046 908L	CERL-PR-D-4 AD- 757 627	CERL-SR-D-73-VOL-3 AD-A040 758
CERL-IR-N-91 AD-A088 268	CERL-PR-D-5 AD- 765 477	CERL-SR-D-78 AD-A041 187
CERL-IR-N-94 AD-A088 261	CERL-PR-E-13 AD- 765 476	CERL-SR-D-79 AD-A041 188
CERL-IR-P-10 AD-A022 656	CERL-PR-M-7 AD- 729 660	CERL-SR-D-84 AD-A053 228
CERL-IR-P-55 AD-A021 388	CERL-PR-M-13 AD- 741 357	CERL-SR-E-103 AD-A037 545
CERL-IR-P-56 AD-A020 951	CERL-PR-M-21 AD- 748 408	CERL-SR-E-107 AD-A041 450
CERL-IR-P-66 AD-A024 938	CERL-PR-M-27 AD- 755 524	CERL-SR-E-116 AD-A043 170
CERL-IR-P-81 AD-A040 119	CERL-PR-M-44 AD- 761 077	CERL-SR-E-121 AD-A050 169
CERL-IR-P-84 AD-A045 183	CERL-PR-S-19 AD- 764 243	CERL-SR-E-132 AD-A058 570
CERL-IR-P-93 AD-A064 650	CERL-SP-P-91 AD-A055 874	CERL-SR-E-133 AD-A059 058
CERL-IR-P-99 AD-A066 112	CERL-SR-C-80 AD-A042 312	CERL-SR-E-134 AD-A058 824
CERL-IR-P-111 AD-A088 011	CERL-SR-D-67 AD-A028 387	CERL-SR-E-137 AD-A064 657
CERL-IR-S-24 AD- 768 721	CERL-SR-D-71 AD-A030 092	CERL-SR-E-155 AD-A072 986
CERL-LR-E-25 AD-A015 614	CERL-SR-D-72 AD-A030 520	CERL-SR-E-160 AD-A086 051 AD-D418 086
CERL-M-11 AD-D402 531	CERL-SR-D-72-VOL-1 AD-A031 000	CERL-SR-M-206 AD-A037 747
CERL-M-277 AD-8046 844L	CERL-SR-D-73-VOL-1 AD-A040 756	CERL-SR-M-209 AD-A038 768
CERL-PR-A-14 AD- 760 489	CERL-SR-D-73-VOL-2 AD-A040 757	CERL-SR-M-216 AD-A040 061

REPORT NUMBER INDEX-3  
UNCLASSIFIED 099062

CER-CER

UNCLASSIFIED

CERL-SR-M-223 AD-A043 173	CERL-SR-N-59 AD-A061 638	CERL-TM-A-9 AD- 757 169
CERL-SR-M-240 AD-A056 620	CERL-SR-N-77 AD-A073 782	CERL-TM-C-3 AD- 782 913
CERL-SR-M-241 AD-A057 956	CERL-SR-N-79 AD-A076 552	CERL-TM-D-61 AD-A016 984
CERL-SR-M-242 AD-A057 225	CERL-SR-O-2 AD-A069 586	CERL-TM-E-20 AD- 770 395
CERL-SR-M-243 AD-A056 627	CERL-SR-P-74 AD-A032 125	CERL-TM-M-12 AD- 741 358
CERL-SR-M-255 AD-A065 659	CERL-SR-P-87 AD-A053 229	CERL-TM-M-29 AD- 751 177
CERL-SR-M-256 AD-A064 731	CERL-SR-P-92 AD-A056 089	CERL-TM-M-42 AD- 757 630
CERL-SR-M-257 AD-A064 813	CERL-SYMP-PROC-D-62 AD-A034 135	CERL-TM-M-46 AD- 762 113
CERL-SR-M-261 AD-A067 708	CERL-TECHNICAL MS-ADS-4 AD-A042 665	CERL-TM-M-47 AD- 762 552
CERL-SR-M-262 AD-A069 878	CERL-TECHNICAL-MS-E-84 AD-A022 844	CERL-TM-M-48 AD- 762 114
CERL-SR-M-265 AD-A073 802	CERL-TECHNICAL-MS-E-118 AD-A044 814	CERL-TM-M-53 AD- 766 299
CERL-SR-M-273 AD-A075 607	CERL-TECHNICAL-MS-M-176 AD-A021 651	CERL-TM-M-58 AD- 771 906
CERL-SR-N-17 AD-A037 048	CERL-TECHNICAL-MS-M-189 AD-A030 397	CERL-TM-M-72 AD- 775 812
CERL-SR-N-25 AD-A043 171	CERL-TIP-C-48 AD-A017 329	CERL-TM-M-82 AD- 780 801
CERL-SR-N-31 AD-A061 158	CERL-TIP-C-49 AD-A017 328	CERL-TM-M-85 AD- 777 544
CERL-SR-N-48 AD-A058 825	CERL-TM-A-6 AD- 757 628	CERL-TM-M-102 AD-A016 985
CERL-SR-N-58 AD-A061 123	CERL-TM-A-7 AD- 757 629	CERL-TM-M-119 AD-A005 576

REPORT NUMBER INDEX-4  
UNCLASSIFIED 099062

CER-CER

# UNCLASSIFIED

CERL-TM-M-145 AD-A014 141	CERL-TR-C-13 AD-A003 237	CERL-TR-C-28-VOL-4A AD-A011 227
CERL-TM-M-165 AD-A017 040	CERL-TR-C-14 AD-A006 014	CERL-TR-C-28-VOL-4B AD-A009 748
CERL-TM-M-210 AD-A039 029	CERL-TR-C-14-VOL-2 AD-A006 495	CERL-TR-C-28-VOL-4C AD-A011 231
CERL-TM-M-266 AD-A072 001	CERL-TR-C-14-VOL-3 AD-A006 145	CERL-TR-C-28-VOL-5A AD-A010 714
CERL-TM-P-1 AD- 724 132	CERL-TR-C-15 AD-A007 152	CERL-TR-C-28-VOL-5B AD-A010 715
CERL-TM-P-4 AD- 755 525	CERL-TR-C-16 AD-A011 225	CERL-TR-C-28-VOL-5C AD-A011 232
CERL-TM-P-19 AD- 770 374	CERL-TR-C-17 AD-A011 223	CERL-TR-C-28-VOL-7 AD-A015 973
CERL-TM-S-13 AD- 766 706	CERL-TR-C-18 AD-A010 631	CERL-TR-C-28-VOL-8 AD-A011 235
CERL-TR-4-84 AD- 711 526	CERL-TR-C-19 AD-A012 729	CERL-TR-C-29 AD-A010 630
CERL-TR-A-2 AD- 728 169	CERL-TR-C-28 AD-A010 632	CERL-TR-C-46 AD-A014 140
CERL-TR-A-8 AD- 753 925	CERL-TR-C-28-VOL-1 AD-A009 743	CERL-TR-C-59 AD-A023 186
CERL-TR-A-12 AD- 755 523	CERL-TR-C-28-VOL-2A AD-A009 744	CERL-TR-C-71 AD-A027 584
CERL-TR-A-13 AD- 759 486	CERL-TR-C-28-VOL-2B AD-A009 745	CERL-TR-C-72 AD-A028 380
CERL-TR-A-16 AD- 762 551	CERL-TR-C-28-VOL-2C AD-A009 746	CERL-TR-C-73 AD-A033 754
CERL-TR-A-19 AD- 767 530	CERL-TR-C-28-VOL-3A AD-A009 747	CERL-TR-C-73-VOL-2 AD-A030 518
CERL-TR-A-21 AD- 769 599	CERL-TR-C-28-VOL-3B AD-A011 226	CERL-TR-C-73-VOL-3 AD-A030 519
CERL-TR-A-22 AD- 772 896	CERL-TR-C-28-VOL-3C AD-A010 713	CERL-TR-C-73-VOL-4 AD-A041 331

REPORT NUMBER INDEX-5  
UNCLASSIFIED 099062

CER-CER

# UNCLASSIFIED

CERL-TR-C-76-VOL-1 AD-A048 884	CERL-TR-D-48 AD-A007 133	CERL-TR-E-16 AD- 769 600
CERL-TR-C-76-VOL-2 AD-A049 029	CERL-TR-D-48-VOL-2 AD-A007 741	CERL-TR-E-17 AD- 773 690
CERL-TR-C-76-VOL-3 AD-A056 575	CERL-TR-D-48-VOL-3 AD-A011 187	CERL-TR-E-22 AD- 773 714
CERL-TR-C-76-VOL-4 AD-A060 883	CERL-TR-D-58 AD-A023 972	CERL-TR-E-23 AD- 774 299
CERL-TR-C-76-VOL-5 AD-A058 860	CERL-TR-D-63 AD-A018 953	CERL-TR-E-24 AD- 778 162
CERL-TR-C-77 AD-A042 179	CERL-TR-D-65 AD-A019 929	CERL-TR-E-29 AD- 776 367
CERL-TR-D-1 AD- 760 185	CERL-TR-D-70 AD-A034 131	CERL-TR-E-33 AD- 779 509
CERL-TR-D-2 AD- 758 151	CERL-TR-D-74 AD-A034 167	CERL-TR-E-37 AD- 787 295
CERL-TR-D-8 AD- 764 452	CERL-TR-D-75 AD-A033 755	CERL-TR-E-42 AD- 782 911
CERL-TR-D-9 AD- 765 420	CERL-TR-D-76-VOL-1 AD-A039 363	CERL-TR-E-48 AD-A015 616
CERL-TR-D-17 AD- 775 430	CERL-TR-D-76-VOL-2 AD-A038 594	CERL-TR-E-50 AD-A008 988
CERL-TR-D-20 AD- 778 156	CERL-TR-D-77 AD-A042 580	CERL-TR-E-51 AD-A015 615
CERL-TR-D-22 AD- 777 769	CERL-TR-E-7 AD- 772 893	CERL-TR-E-53 AD-A010 629
CERL-TR-D-27 AD- 784 059	CERL-TR-E-9 AD- 758 152	CERL-TR-E-55 AD-B003 456
CERL-TR-D-28 AD- 784 056	CERL-TR-E-10 AD- 760 490	CERL-TR-E-57 AD-A012 109
CERL-TR-D-29 AD-A009 700	CERL-TR-E-14 AD- 763 902	CERL-TR-E-59 AD-A006 241
AD-A009 701	CERL-TR-E-15 AD- 772 894	CERL-TR-E-60 AD-A015 613
CERL-TR-D-38 AD-A003 828		

REPORT NUMBER INDEX-6  
UNCLASSIFIED 099062

CER-CER



UNCLASSIFIED

CERL-TR-E-03 AD-A005 045	CERL-TR-E-131 AD-A056 196	CERL-TR-E-165 AD-A084 717
CERL-TR-E-69 AD-A013 359	CERL-TR-E-135 AD-A063 239	CERL-TR-M-2 AD- 867 374L
CERL-TR-E-73 AD-A015 020	CERL-TR-E-136 AD-A062 653	CERL-TR-M-3 AD- 710 982
CERL-TR-E-75 AD-A018 879	CERL-TR-E-139 AD-A062 719	CERL-TR-M-4 AD- 715 400
CERL-TR-E-80 AD-A026 173	CERL-TR-E-140 AD-A063 936	CERL-TR-M-5 AD- 880 626
CERL-TR-E-85 AD-A022 698	CERL-TR-E-142 AD-A074 467	CERL-TR-M-6 AD- 720 993
CERL-TR-E-86 AD-A024 303	CERL-TR-E-147 AD-A067 203	CERL-TR-M-8 AD- 729 661
CERL-TR-E-88 AD-A023 596	CERL-TR-E-149 AD-A067 829	CERL-TR-M-14 AD- 742 212
CERL-TR-E-90 AD-A024 786	CERL-TR-E-150 AD-A074 902	CERL-TR-M-15 AD- 742 213
CERL-TR-E-91 AD-A026 588	CERL-TR-E-151 AD-A071 539	CERL-TR-M-17 AD- 745 901
CERL-TR-E-92 AD-A031 781	CERL-TR-E-153-VOL-1 AD-A072 272	CERL-TR-M-18 AD- 745 408
CERL-TR-E-95 AD-A034 416	CERL-TR-E-153-VOL-2 AD-A072 273	CERL-TR-M-19 AD- 745 902
CERL-TR-E-102 AD-A036 479	CERL-TR-E-154 AD-A072 435	CERL-TR-M-22 AD- 749 458
CERL-TR-E-104 AD-A039 364	CERL-TR-E-156 AD-A078 422	CERL-TR-M-23 AD- 752 454
CERL-TR-E-114 AD-A042 178	CERL-TR-E-158 AD-A083 317	CERL-TR-M-24 AD- 749 459
CERL-TR-E-119-VOL-2 AD-A048 982	CERL-TR-E-159 AD-A082 773	CERL-TR-M-28 AD- 756 384
CERL-TR-E-128 AD-A054 707	CERL-TR-E-162 AD-A089 406	CERL-TR-M-31 AD- 767 531

REPORT NUMBER INDEX-7  
UNCLASSIFIED 099062

CER-CER

UNCLASSIFIED

CERL-TR-M-40 AD- 759 132	CERL-TR-M-93 AD-A011 180	CERL-TR-M-143 AD-A013 380
CERL-TR-M-43 AD- 773 716	CERL-TR-M-94 AD-A021 774	CERL-TR-M-147 AD-A015 469
CERL-TR-M-45 AD- 765 473	CERL-TR-M-96 AD- 782 914	CERL-TR-M-148 AD-A014 945
CERL-TR-M-49 AD- 762 194	CERL-TR-M-106 AD-A003 833	CERL-TR-M-151 AD-A017 045
CERL-TR-M-52 AD-A058 832	CERL-TR-M-109 AD-A004 001	CERL-TR-M-166 AD-A029 409
CERL-TR-M-60 AD-A009 667	CERL-TR-M-114 AD-A012 728	CERL-TR-M-169 AD-A018 951
CERL-TR-M-61-REV AD-A012 110	CERL-TR-M-118 AD-A006 015	CERL-TR-M-170 AD-A019 930
CERL-TR-M-62 AD- 771 908	CERL-TR-M-120 AD-A008 996	CERL-TR-M-171 AD-A019 931
CERL-TR-M-67 AD- 774 847	CERL-TR-M-121 AD-A011 224	CERL-TR-M-175 AD-A022 085
CERL-TR-M-68 AD- 772 895	CERL-TR-M-122 AD-A007 742	CERL-TR-M-177 AD-A022 697
CERL-TR-M-75 AD-A008 997	CERL-TR-M-126 AD-B009 462L	CERL-TR-M-179 AD-A025 209
CERL-TR-M-79 AD- 777 768	CERL-TR-M-129 AD-A028 386	CERL-TR-M-180 AD-A024 910
CERL-TR-M-80 AD- 780 800	CERL-TR-M-131 AD-A029 410	CERL-TR-M-181 AD-A025 203
CERL-TR-M-81 AD- 779 510	CERL-TR-M-132 AD-A012 732	CERL-TR-M-185 AD-A028 605
CERL-TR-M-86 AD- 780 802	CERL-TR-M-134 AD-A012 731	CERL-TR-M-186 AD-A029 911
CERL-TR-M-88 AD- 784 092	CERL-TR-M-136 AD-A013 403	CERL-TR-M-188 AD-A032 569
CERL-TR-M-92 AD- 781 944	CERL-TR-M-138 AD-A013 387	CERL-TR-M-192 AD-A030 566

REPORT NUMBER INDEX-8  
UNCLASSIFIED 099062

CER-CER

## UNCLASSIFIED

CERL-TR-M-193 AD-A033 757	CERL-TR-M-219 AD-A042 313	CERL-TR-M-246 AD-A056 300
CERL-TR-M-194 AD-A033 440	CERL-TR-M-220 AD-B020 359L	CERL-TR-M-253-VOL-1 AD-A061 157
CERL-TR-M-195-VOL-1 AD-A035 763	CERL-TR-M-221 AD-A043 558	CERL-TR-M-253-VOL-2 AD-A067 691
CERL-TR-M-195-VOL-2 AD-A035 779	CERL-TR-M-224 AD-A042 628	CERL-TR-M-253-VOL-3 AD-A064 698
CERL-TR-M-196 AD-A034 662	CERL-TR-M-225 AD-A044 992	CERL-TR-M-258 AD-A072 054
CERL-TR-M-197 AD-A033 684	CERL-TR-M-226 AD-A044 993	CERL-TR-M-260 AD-B036 607L
CERL-TR-M-198-VOL-1 AD-A035 687	CERL-TR-M-228 AD-A045 186	CERL-TR-M-264 AD-A073 031
CERL-TR-M-198-VOL-2 AD-A035 688	CERL-TR-M-229 AD-B023 059L	CERL-TR-M-267 AD-A073 619
CERL-TR-M-199 AD-A035 258	CERL-TR-M-230 AD-A054 306	CERL-TR-M-268-VOL-1 AD-A074 170
CERL-TR-M-201 AD-A037 046	CERL-TR-M-231 AD-A053 272	CERL-TR-M-268-VOL-2 AD-A074 171
CERL-TR-M-203 AD-A037 047	CERL-TR-M-233 AD-A054 440	CERL-TR-M-269 AD-A075 746
CERL-TR-M-207 AD-A038 832	CERL-TR-M-235 AD-A054 307	CERL-TR-M-270 AD-A075 204
CERL-TR-M-212 AD-A039 120	CERL-TR-M-236 AD-A068 295	CERL-TR-M-272-VOL-1 AD-A076 332
CERL-TR-M-213 AD-A042 873	CERL-TR-M-237 AD-A054 309	CERL-TR-M-272-VOL-2 AD-A076 310
CERL-TR-M-214 AD-A040 741	CERL-TR-M-238 AD-A055 520	CERL-TR-M-274 AD-B042 190L
CERL-TR-M-215 AD-A040 789	CERL-TR-M-239 AD-A057 957	CERL-TR-M-276 AD-A080 057
CERL-TR-M-217 AD-A041 339	CERL-TR-M-245 AD-A057 435	CERL-TR-M-278 AD-A085 342

REPORT NUMBER INDEX-9  
UNCLASSIFIED 099062

CER-CER

# UNCLASSIFIED

CERL-TR-M-279 AD-A085 188	CERL-TR-N-37 AD-A050 813	CERL-TR-N-66 AD-A069 374
CERL-TR-M-280 AD-A087 266	CERL-TR-N-38 AD-A051 999	CERL-TR-N-68 AD-A069 097
CERL-TR-N-2 AD-A027 139	CERL-TR-N-40 AD-A057 226	CERL-TR-N-69 AD-A073 667
CERL-TR-N-4 AD-A027 431	CERL-TR-N-41-VOL-1 AD-A060 958	CERL-TR-N-70 AD-A068 746
CERL-TR-N-5 AD-A029 633	CERL-TR-N-41-VOL-2 AD-A072 002	CERL-TR-N-71 AD-A072 003
CERL-TR-N-6 AD-A028 921	CERL-TR-N-41-VOL-3 AD-A083 320	CERL-TR-N-72 AD-A069 324
CERL-TR-N-8 AD-A030 453	CERL-TR-N-41-VOL-4 AD-A083 321	CERL-TR-N-74 AD-A073 032
CERL-TR-N-11 AD-A033 223	CERL-TR-N-42 AD-A055 565	CERL-TR-N-76 AD-A074 480
CERL-TR-N-12 AD-A033 753	CERL-TR-N-43 AD-A056 997	CERL-TR-N-78 AD-A073 894
CERL-TR-N-13 AD-A033 475	CERL-TR-N-49 AD-A055 561	CERL-TR-N-80 AD-A074 890
CERL-TR-N-20 AD-A039 132	CERL-TR-N-50 AD-A057 366	CERL-TR-N-81 AD-A079 441
CERL-TR-N-21 AD-A040 005	CERL-TR-N-53 AD-A059 176	CERL-TR-N-82 AD-A080 429
CERL-TR-N-22 AD-A038 232	CERL-TR-N-56 AD-A061 126	CERL-TR-N-85 AD-A082 502
CERL-TR-N-28 AD-B031 260L	CERL-TR-N-57 AD-A064 356	CERL-TR-N-87 AD-A085 991
CERL-TR-N-29 AD-A045 421	CERL-TR-N-62 AD-A067 697	CERL-TR-N-89 AD-A086 526
CERL-TR-N-30 AD-A047 969	CERL-TR-N-63 AD-A067 253	CERL-TR-N-90 AD-A088 260
CERL-TR-N-35 AD-A057 936	CERL-TR-N-64 AD-A069 977	CERL-TR-N-92 AD-A089 976

REPORT NUMBER INDEX-10  
UNCLASSIFIED 099062

CER-CER

UNCLASSIFIED

CERL-TR-N-95 AD-A088 271	CERL-TR-P-36 AD-A009 522	CERL-TR-P-82 AD-A043 717
CERL-TR-N-96 AD-A089 136	CERL-TR-P-46 AD-A016 919	CERL-TR-P-83 AD-A044 454
CERL-TR-O-1-VOL-1 AD-A063 092	CERL-TR-P-47 AD-A018 716	CERL-TR-P-85 AD-A048 102
CERL-TR-O-1-VOL-2 AD-A061 647	CERL-TR-P-48 AD-A018 437	CERL-TR-P-89 AD-A057 146
CERL-TR-P-5 AD- 763 212	CERL-TR-P-49 AD-A018 438	CERL-TR-P-90 AD-A057 147
CERL-TR-P-6 AD- 758 447	CERL-TR-P-51 AD-A018 439	CERL-TR-P-94-VOL-1 AD-A061 127
CERL-TR-P-7 AD- 753 927	CERL-TR-P-52 AD-A016 788	CERL-TR-P-94-VOL-2 AD-A061 108
CERL-TR-P-9 AD- 768 098	CERL-TR-P-52-VOL-1 AD-A064 924	CERL-TR-P-95 AD-A061 091
CERL-TR-P-14 AD- 767 529	CERL-TR-P-52-VOL-2 AD-A064 925	CERL-TR-P-96 AD-A062 720
CERL-TR-P-15 AD- 771 909	CERL-TR-P-54 AD-A018 217	CERL-TR-P-97-VOL-1 AD-A065 827
CERL-TR-P-16 AD- 766 725	CERL-TR-P-65 AD-A024 141	CERL-TR-P-97-VOL-2 AD-A067 719
CERL-TR-P-18 AD- 770 927	CERL-TR-P-67 AD-A027 385	CERL-TR-P-98 AD-A066 384
CERL-TR-P-21 AD- 779 511	CERL-TR-P-68 AD-A027 386	CERL-TR-P-100 AD-A068 360
CERL-TR-P-22 AD- 782 912	CERL-TR-P-69 AD-A027 585	CERL-TR-P101 AD-A071 623
CERL-TR-P-25 AD- 786 551	CERL-TR-P-76 AD-A033 476	CERL-TR-P-102 AD-A071 637
CERL-TR-P-26 AD-A000 710	CERL-TR-P-77 AD-A035 262	CERL-TR-P-103 AD-A075 511
CERL-TR-P-31 AD-A003 991	CERL-TR-P-80 AD-A040 742	CERL-TR-P-106 AD-A080 609

REPORT NUMBER INDEX-11  
UNCLASSIFIED 099062

CER-CER

UNCLASSIFIED

CERL-TR-P-107  
AD-A084 539

CERL-TR-P-108  
AD-A083 683

CERL-TR-P-109  
AD-A088 925

CERL-TR-P-110  
AD-A088 634

CERL-TR-S-4  
AD- 742 214

CERL-TR-S-9  
AD- 751 172

CERL-TR-S-11  
AD- 763 912

CERL-TR-S-12  
AD- 907 397L

CERL-TR-S-14  
AD- 755 526

CERL-TR-S-26  
AD- 771 160

CERL-TR-S-27  
AD- 773 715

CERL-TR-S-28  
AD- 774 849

CERL-TR-S-30  
AD-A048 250

CERL-TR-T-1  
AD- 742 781

CPG-73-0029  
AD- 753 925

DOD/DF-78-008  
AD-A056 226

EPA/550/9-77-400  
AD-A038 232

FAA-RD-77-148  
AD-A054 309

GIDEP-E082-2659  
AD-A042 313

LABORATORY  
AD- 990 800

M-1  
AD- 695 719

SAMSO-TR-69-294  
AD- 867 374L

SBIE-AD-E400 190  
AD-B031 260L

US ARMY  
AD- 990 800

REPORT NUMBER INDEX-12  
UNCLASSIFIED 099062

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-D418 086

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILL

Investigation of Methods to Predict Thermal  
Stratification and its Effect on Solar Energy  
System Performance.

(U)

MAY 80 30P Sliwinski, B. J. ;  
REPT. NO. CERL-SR-E-160

UNCLASSIFIED REPORT

Approved for public release; distribution unlimited.  
Availability: National Technical Information  
Service, Springfield, VA. 22161. CERL-SR-E-  
160.

IAC ACCESSION NUMBER: PL-901660

IAC DOCUMENT TYPE: PLASTIC -HARD COPY--

This report describes a study to identify  
characteristics which induce thermal stratification  
in liquid thermal storage, and to evaluate solar  
energy system performance as a function of the degree  
of stratification. The mathematical correlations  
described in this report allow stratification  
occurrence to be predicted and can be used to  
estimate the sharpness of the thermocline based on  
tank inlet and outlet conditions, fluid properties,  
and storage tank geometry. (Author, modified).

(U)

IAC SUBJECT TERMS: P--(U) Theory, Energy storage,  
Temperature profiles, Thermal storage,  
Stratification, Thermal conductivity, Solar heating  
systems, Storage tanks, ZZ MIDE, ZZ Unlimited.;

AD-D418 086

UNCLASSIFIED

PAGE

1

AD-D402 631

UNCLASSIFIED

099062

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-D402 631

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILL

THE EFFECTS OF DILUENTS ON THE PHYSICAL PROPERTIES  
OF EPOXY RESIN GROUT.

(U)

FEB 72 1V Kempfues, R.F. ;  
REPT. NO. CERL-M-11

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: Unpublished report.

IAC ACCESSION NUMBER: PL-017376

IAC DOCUMENT TYPE: PLASTIC -HARD COPY--

The objective of this study was to determine the  
effects of representative nonreactive and reactive  
diluent on the physical properties of uncured and  
cured epoxy resin grouts to indicate the desirability  
of using diluents to ease the application of Grade  
B GROUT IN THE FIELD. One nonreactive diluent,  
toluene, and two reactive diluents, butyl glycidyl  
ether and phenyl glycidyl ether were selected for  
testing. The physical properties of the epoxy grout  
system used to evaluate the diluents were viscosity,  
tensile strength, tensile elongation, and hardness as  
determined by standard ASTM tests, and bond strength  
as determined by a special test designed by the  
author. (P.S.-PL)

(U)

IAC SUBJECT TERMS: P--(U) Grout-Epoxy, Curing-  
Epoxy, Diluent-Toluene, Diluent-Butyl glycidyl  
ether, Diluent-Phenyl glycidyl ether, Viscosity-  
Epoxy, Tensile strength-Epoxy, Bond strength-  
Epoxy, Hardness-Epoxy, Elongation-Epoxy, ZZ  
Unlimited;

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-8046 908L 9/2 6/6 5/2

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN IL

Preliminary Analysis of Computer-Aided Environmental Baseline Information System (CEBIS). Phase I. System Requirements. (U)

DESCRIPTIVE NOTE: Interim rept.,  
APR 80 32P Webster, Ron D.; Putnam, Dan  
;  
REPT. NO. CERL-IR-N-88  
PROJ: 2103  
TASK: 9P

UNCLASSIFIED REPORT

Distribution limited to U.S. Gov't. agencies only; Test and Evaluation; Apr 80. Other requests for this document must be referred to Commander, Air Force Engineering and Services Center, Attn: RDVA, Tyndall AFB, FL 32403.

SUPPLEMENTARY NOTE: DTIC Form 55 not necessary for document request.

DESCRIPTORS: \*Environments. \*Data bases. \*Information processing. Base lines. Air Force facilities. Data storage systems. Input output processing. Machine coding. Standardization. Efficiency. Information retrieval. Pilot studies. Environmental impact statements. (U)  
IDENTIFIERS: CEBIS/Computer Aided Environmental Baseline Information System). PE63723F. WUCERL21039P39 (U)

This interim report summarizes progress on the joint U.S. Army Construction Engineering Research Laboratory (CERL)/Air Force project to develop a Computer-aided Environmental Baseline Information System (CEBIS) that will store and allow analysis of environmental information from sources such as the TAB A-1. Environmental Narrative. This report fulfills the requirement under Task 5 in the Statement of Work to document progress, results, conclusions, and recommendations based upon completion of phase I of a two-phase project. Phase I specified: (1) evaluate the TAB A-1 and other data sources for information storage characteristics. (2) isolate those characteristics suitable for computer storage and analysis with existing prediction system, (3) (U)

AD-8046 908L

UNCLASSIFIED

PAGE

2

AD-8046 844L

UNCLASSIFIED

099062

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-8046 844L 20/14 20/3 6/17

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN IL

Selection of Recommended Electromagnetic Interference, Radio Frequency Interference Shielding Effectiveness Test Procedures for Military Tactical Shelters. (U)

DESCRIPTIVE NOTE: Final rept. May 78-Sep 79.  
JAN 80 50P McCormack, R. G.;  
REPT. NO. CERL-M-277  
PROJ: 2104  
TASK: 4S  
MONITOR: AFESC/ESL TR-80-1

UNCLASSIFIED REPORT

Distribution limited to U.S. Gov't. agencies only; Test and Evaluation; Jan 80. Other requests for this document must be referred to Commander, Air Force Engineering and Services Center, Attn: RDCF, Tyndall AFB, FL 32403.  
DESCRIPTORS: \*Electromagnetic shielding. \*Radiofrequency interference. \*Shelters. \*Electromagnetic interference. Electric fields. Specifications. Test methods. Magnetic fields. Laboratory tests. Loop antennas. IDENTIFIERS: Tactical shelters. Military shelters. PE63723F. WUESL21044501 (U) (U)

This report examines three test procedures for measuring electromagnetic interference/radio frequency interference (EMI/RFI) shielding effectiveness: MIL-STD-285, Institute of Electrical and Electronic Engineers (IEEE) 299, and National Security Agency (NSA) 65-6. The requirements of these specifications are compared; pertinent aspects of the specifications' procedures are evaluated. The study involved literature research, comparison of existing test specifications, laboratory testing, and summary of past experience. The laboratory testing compared equipment types and testing techniques and examined error possibilities resulting from commonly encountered inaccuracies in equipment setup. This report concludes that the test procedure representing the state of the art uses IEEE 299 practices (with some modification) and standard antennas and instrumentation. The accuracy and repeatability of (U)



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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 039062

AD-B042 190L 19/3 13/2

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILL

Earthmoving, Lifting, and Pulling  
Requirements for the Combat Engineer Vehicle  
(CEV). (U)

DESCRIPTIVE NOTE: Final rept.,

OCT 79 99p Mahin, Christopher; Cunningham  
Walter J.; Lindow, Edward S.; Weber, Robert  
A.;

REPT. NO. CERL-TR-M-274

PROJ: 4A763734DT08

TASK: T8

UNCLASSIFIED REPORT

Distribution limited to U.S. Gov't. agencies only;  
Test and Evaluation; Sep 79. Other requests for  
this document must be referred to Commandant, Army  
Engineer School, Fort Belvoir, VA 22060.

DESCRIPTORS: \*Combat vehicles, \*Military  
engineering, \*Earth handling equipment,  
Performance(Engineering), Construction equipment,  
Tactical warfare, Hoists (U)

IDENTIFIERS: \*Combat engineer vehicles,  
PE63734A, AST08, WU013 (U)

This report defines and quantifies the significant  
earthmoving, lifting, and pulling requirements of the  
armored combat engineer vehicle (CEV). Demolition  
requirements and overall policies of tactical  
employment were not investigated. A methodology for  
determining the relative frequencies of these  
requirements in battlefield scenarios was developed.  
This report discusses the capabilities of the  
present M728 CEV, as well as the advantages of  
adapting the new XM1 combat tank as a base for a  
CEV. Design-related information and  
recommendations for vehicle improvement are provided  
for possible incorporation into the anticipated  
modification of the XM1 tank. (Author) (U)

AD-B042 190L

UNCLASSIFIED

PAGE

3

UNCLASSIFIED

099062

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-B036 607L 17/9 9/1 11/4

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILL

Advanced Development Tests of a Composite  
Material for Antenna Element Radomes. (U)

DESCRIPTIVE NOTE: Final rept.,

MAR 79 58p Smith, Alvin; Ziegler, L. N.

;

REPT. NO. CERL-TR-M-260

UNCLASSIFIED REPORT

Distribution limited to U.S. Gov't. agencies only;  
Test and Evaluation; 23 Aug 74. Other requests for  
this document must be referred to Director, Ballistic  
Missile Defense Advanced Technology Center,  
Attn: ATC-R, P.O. Box 1500, West Station,  
Huntsville, AL 35807.

DESCRIPTORS: \*Radomes, \*Antenna components,  
\*Composite materials, Polyester plastics, Binders,  
Fillers, Silicon dioxide, Impact tests,  
Compression, Tensile strength, Adhesive bonding,  
Thermal stresses, Impulse loading, Nuclear  
explosion simulation, Flat plate models, Rupture (U)

IAC ACCESSION NUMBER: PL-032757

IAC DOCUMENT TYPE: PLASTIC -HARD COPY--

This report presents data obtained in the third  
phase of a study of materials for antenna element  
support domes. This phase was devoted to the  
advanced development of a silica-flour-filled  
polyester resin developed and evaluated during the  
first two phases of this study. Test results showed  
that the composite material is impact sensitive,  
behaves as expected in dynamic compression and  
tension loading, can be bonded adequately with  
selected adhesives, and suffers little structural  
alteration in thermal-impulse tests simulating  
nuclear blast conditions. The characteristics of  
flat-plate sections perforated by holes for antenna  
elements are compared to those of nonperforated  
plates, and the change in modulus of rupture of these  
plates is related to dome design considerations. (U)

IAC SUBJECT TERMS: P--(U)Design criteria, Stress  
concentration, Composites, Radomes, Antennas,  
Testing, Compression strength, Adhesion, Flat  
plates, Tensile strength, Notch sensitivity, Joint  
strength, Impact tests, Hole effects, Flexural

AD-B036 607L

UNCLASSIFIED

3

099062

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099052

AD-8031 260L 19/1 13/2

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLWater Management Modifications for Acetic  
Anhydride Manufacture at Holston Army  
Ammunition Plant. (U)DESCRIPTIVE NOTE: Final technical rept. 1974-1976,  
JUL 78 40P Gerdes, G. L.; Mikucki, W.  
J.; Freeman, Donald J. ;

REPT. NO. CERL-TR-N-28

MONITOR: ARLCD, SBIE TR-77073, AD-E400 190

## UNCLASSIFIED REPORT

Distribution limited to U.S. Gov't. agencies only;  
Test and Evaluation; Jul 78. Other requests for  
this document must be referred to Commander, Army  
Ammunition Research and Development Command,  
Attn: DRDAR-TSS, Dover, NJ 07801.DESCRIPTORS: \*Explosive ordnance disposal, \*Waste  
disposal, \*Acetic anhydride, Munitions industry,  
Military facilities, Water pollut on abatement,  
Waste recycling, Energy conservation, Pilot  
studies, Industrial plants, Scrubbers,  
Seals(Stoppers), Vacuum pumps, Waste water,  
Waste gases (U)IDENTIFIERS: Holston Army Ammunition Plant,  
LPN-ARRADCOM-5734114, LPN-ARRADCOM-5754114 (U)

The program evaluated, on a pilot scale, a proposed modification to the acetic anhydride facilities at Holston Army Ammunition Plant (HAAP). The modification includes eliminating the water scrubber, the steam jet ejector, the barometric seal, and the drain sump, and replacing these units with a liquid seal; vacuum pump to provide vacuum service and to cool and compress the waste vapors and gases. The proposed modification would also recover condensables and acetic acid for reuse and noncondensables for use as supplementary fuel in the cracking furnace. The pilot scale evaluation of the proposed modification ascertained that implementing these methods would recover significant quantities of acetic acid; reduce fuel, steam, and water consumption; lower production costs; and eliminate pollution. (Author) (U)

AD-8031 260L

UNCLASSIFIED

PAGE

4

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-B023 059L 17/9 11/4

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLFabrication and Testing of a Composite  
Material Radome. (U)

DESCRIPTIVE NOTE: Final rept.,

SEP 77 105P Smith, Alvin ; Woratzeck,  
Michael ;

REPT. NO. CERL-TR-M-229

## UNCLASSIFIED REPORT

Distribution limited to U.S. Gov't. agencies only;  
Test and Evaluation; Sep 77. Other requests for  
this document must be referred to Director, Ballistic  
Missile Defense Advanced Technology Center,  
Attn: BMDATC-T, P.O. Box 1500, West  
Station, Huntsville, AL 35807.DESCRIPTORS: \*Radomes, \*Composite materials,  
Polyester plastics, Silicon dioxide, Powders,  
Glass reinforced plastics, Molds(Forms),  
Fabrication, Castings, Test and evaluation,  
Models, Structural properties, Electrical  
properties, Construction materials, Shock,  
Loads(Forces) (U)

IAC ACCESSION NUMBER: PL-027695 GC-780237

IAC DOCUMENT TYPE: PLASTIC -HARD COPY-- GACIAC -HARD  
COPY--

This report presents data obtained in the second phase of a study of materials for antenna element support domes. The phase described in this report involved the design, fabrication, and testing of a 5-ft (1.5-m) diameter radome model made of a filled polyester resin developed in the first phase of the study. The results show that a filled resin composite material system can be formulated, mixed, and fabricated into a structure capable of withstanding shock load environments. The material also possesses electrical properties required for use with some types of antenna elements. (Author) (U)

IAC SUBJECT TERMS:

G--(U)Devices, Radomes,  
Composite filler/resin binder construction, Polyester  
resin binders, Silica fiber materials, Development,  
Design study, Test and evaluation, Electrical  
properties, Mechanical properties, Data; P--  
(U)Design, Fabrication, Testing, Radomes,  
Polyesters, Modeling, Silica, Flour, Fillers,  
AD-B023 059L

UNCLASSIFIED

099062

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-B020 359L 11/4 17/9

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLDevelopment of a Composite Material for  
Construction of Antenna Element Radomes.

(U)

DESCRIPTIVE NOTE: Final rept.,

JUL 77 49P Smith, Alvin ;

REPT. NO. CERL-TR-M-220

## UNCLASSIFIED REPORT

Distribution limited to U.S. Gov't. agencies only;  
Test and Evaluation; Jul 77. Other requests for  
this document must be referred to Office of the Chief  
of Engineers (Army), Attn: DAEN-MCE-D.  
Washington, D. C. 20314.

DESCRIPTORS: \*Composite materials. \*Radomes.  
\*Radar antennas. Fillers. Polyester plastics.  
Binders. Silicon dioxide. Powders. Structural  
properties. Electrical properties. Compressive  
properties. Tensile strength. Flexural strength.  
Dielectric properties. Test methods

(U)

IAC ACCESSION NUMBER: PL-026805 GC-780180  
IAC DOCUMENT TYPE: PLASTIC -MICROFICHE-- GACIAC -HARD  
COPY--

This report presents the results of a study to  
determine whether a composite material of particulate  
filler and resin could be developed to meet the  
design criteria for use in radar antenna element  
radomes. Sixty-five formulations of 8 resins and 16  
fillers were initially screened to determine which  
combinations should be selected for further study.  
Three polyester resins and one filler-silica flour-  
were found to be most promising. The structural and  
electrical properties of these materials were then  
determined. The results indicated that a  
particulate-filled polyester resin system can be  
formulated to give satisfactory structural and  
electrical properties for use as a radome for antenna  
elements. (Author)

(U)

## IAC SUBJECT TERMS:

G--(U)Devices, Radomes,  
Composite filler/resin binder construction, Polyester  
resin binders, Test and evaluation, Laboratory testing,  
Silica fiber materials, Electrical properties,  
Mechanical properties; P--(U)Epoxy, Polyesters,  
Fillers, Formulations, Electrical properties,  
Comparisons, Antennas, Radomes, Tensile strength,

AD-B020 359L

UNCLASSIFIED

PAGE

5

AD-B009 462L

UNCLASSIFIED

099062

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-B009 462L 13/11 13/8

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILLAnalysis of Leaks in the High Temperature  
Hot Water Piping System at Fort Gordon,  
GA.

(U)

DESCRIPTIVE NOTE: Final rept.,

JAN 76 16P Honig, E. M., Jr.; Weber,

R. A. ;

REPT. NO. CERL-TR-M-126

## UNCLASSIFIED REPORT

Distribution limited to U.S. Gov't. agencies only;  
Contractor Performance Evaluation; Nov 75. Other  
requests for this document must be referred to Commander,  
Army Training and Doctrine Command, Fort  
Monroe, Va. 23651.

DESCRIPTORS: (\*Water pipes, Hot water), (\*Welded  
joints, leakage (fluid)), Cracks, High  
temperature, Penetration, Misalignment, Thermal  
stresses, Fluid flow, Detection, Methodology,  
Repair, Visual inspection

(U)

The problem of leaks at welded joints in the high  
temperature hot water (HTHW) piping system at  
Fort Gordon, GA was examined. Visual  
inspection of a sample weld from the HTHW system  
showed marked lack of penetration in the weld, which  
was typical of the entire system. Other  
investigations of weld properties revealed no other  
critical abnormalities. Analysis of the piping  
design showed that the system was subject to  
overstress due to the constraints imposed by the pipe  
supports on the thermal motion of the system.  
Recommendations are made with respect to weld  
procedure, nondestructive examination, piping design,  
and leak detection in HTHW piping.

(U)

(Author)

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-B003 456 13/2 21/4

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILLUse of Refuse as a Fuel at Fort Monmouth,  
NJ.

(U)

DESCRIPTIVE NOTE: Final rept.,

APR 75 44P Rigo, H. G. ;

REPT. NO. CERL-TR-E-55

## UNCLASSIFIED REPORT

DESCRIPTORS: (\*Solid Wastes, Waste disposal),  
(\*Waste disposal, Recycled materials),  
(\*Recycled materials, Fuels), Cost analysis,  
Economics, Facilities, Processing, Boilers,  
Modification, Efficiency, Costs, Schools,  
Urban areas, Pollution, Land use, Energy  
management

IDENTIFIERS: Shredders, Refuse derived fuel

(U)  
(U)

IAC ACCESSION NUMBER: PL-900506

IAC DOCUMENT TYPE: PLASTIC -MICROFICHE--

This report analyzes the feasibility of using  
refuse-derived fuel (RDF) in the school boiler  
plant at Fort Monmouth, NJ, and the  
desirability of modifying the Monmouth County  
shredder facility to produce RDF. The County  
can produce RDF by adding an air classifier to its  
existing shredding facility. Fort Monmouth can  
convert existing boilers to RDF firing by  
installing reciprocating grate stokers and a baghouse  
for air pollution control. Both the County and  
Fort Monmouth would make a profit. The County  
would also reduce the amount of land required for the  
aerobic disposal of shredded refuse. The project is  
ecologically sound since renewable fuel resources  
would be used at Fort Monmouth. Design criteria  
for the boiler plant modifications are included.  
Capital and life-cycle cost estimates for both  
RDF production and use are presented.  
(Author)

(U)

IAC SUBJECT TERMS:

P--(U)RDF-Boilers, Refuse-  
Fuel oils, Oils-Heat recovery, Costs-Solid waste  
disposal, Economics-RDF, Design-Boilers, RDF-  
Energy Resources, ZZ MTDE, ZZ Unlimited;

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099082

AD-A089 976 5/1

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILL

Guidelines for Review of EA/EIS Documents.

(U)

DESCRIPTIVE NOTE: Final rept.,

AUG 80 77P

Edward W. ; Fittipaldi, John J. ; Novak,

REPT. NO. CERL-TR-N-92

PROJ: 4A162720A896

TASK: 01

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Environmental impact statements,  
Documents, Preparation, Military facilities,  
Environments, Surveys, Technical writing  
IDENTIFIERS: Review techniques, PE62720A,  
AS896, WU001

(U)

(U)

The Federal Government has mandated that its  
agencies write environmental assessments and  
environmental impact statements (EAS/EISs)  
incorporating environmental considerations into the  
planning of new projects. In the Department of  
the Army (DA), proposed Army Regulation (AR)  
200-2, Environmental Considerations in the  
Department of the Army, has imposed stringent new  
requirements for compliance with the National  
Environmental Policy Act (NEPA). This means  
that hundreds of EA/EIS documents must be reviewed  
more closely than before; therefore, an efficient  
procedure is needed for comprehensive, uniform  
evaluation. To meet these new requirements, this  
report sets forth systematic procedures for a review  
and evaluation of EA/EIS documents for  
Administrative Compliance, General Document,  
and Technical Review; and outlines a procedure to  
prepare a review summary of EA/EISs, which will  
lead to an ultimate recommendation on the technical  
adequacy and completeness of those documents. It is  
recommended that this report be used in conjunction  
with revised DA Pamphlet 200-1, Handbook for  
Environmental Impact Analysis, AR 200-1,  
Environmental Protection and Enhancement, and  
AR 200-2 until this information is incorporated  
into revisions of these documents. (Author)

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AD-B003 456

AD-A089 976

PAGE

6

UNCLASSIFIED

099082

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A089 406

13/1

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
1L

Parametric Analysis of Energy Consumption in  
Army Buildings by the Building Loads  
Analysis and System Thermodynamics (BLAST)  
Computer Program.

DESCRIPTIVE NOTE: Final rept.,

AUG 80 41P Windingland, Larry M. ;

REPT. NO. CERL-TR-E-162

PROJ: 4A762731AT41

TASK: 06

(U)

UNCLASSIFIED REPORT

DESCRIPTORS: \*Buildings. \*Energy consumption,  
Army, Facilities, Heating, Cooling,  
Computerized simulation, Thermal insulation,  
Windows, Control systems, Parametric analysis  
IDENTIFIERS: BLAST computer program, AST41,  
PE62731A, WU023

(U)

(U)

This report describes the effects varying  
architectural, construction, and mechanical system  
features have on the energy consumption of three  
Army buildings: a barracks, an administration  
building, and a dental clinic. The three buildings  
were simulated for five climatological regions  
centered at Washington, DC; Charleston, SC;  
Los Angeles, CA; Columbia, MO; and Fort  
Worth, TX. Energy consumption simulations were  
done by the Building Loads Analysis and  
System Thermodynamics (BLAST) computer program.  
The report shows the percentage difference in  
annual heating and cooling energy use for three  
buildings and five locations when variations from the  
as built insulation levels, orientation, window  
areas, window types, infiltration levels, mechanical  
system, and system control strategies are used. It  
was concluded that insulation levels, window size and  
type, and infiltration/ventilation rates are the most  
important architectural and construction features  
affecting the degree of energy consumption, and that  
proper selection of mechanical system type and system  
control strategies can reduce annual energy  
consumption by up to 50 percent. (Author)

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AD-A089 406

UNCLASSIFIED

PAGE

7

AD-A089 136

UNCLASSIFIED

099062

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A089 136

6/6

9/2

5/2

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
1L

Environmental Information Acquisition and  
Maintenance Techniques: Reference Guide.

DESCRIPTIVE NOTE: Final rept.,

AUG 80 41P Riggins, Robert E. ;Young,

V. T. ;Goran, W. D. ;

REPT. NO. CERL-TR-N-96

PROJ: A4762720A896

TASK: 01

(U)

UNCLASSIFIED REPORT

DESCRIPTORS: \*Environments. \*Data acquisition,  
Environmental impact statements, Information  
systems, Data bases, Information retrieval,  
Ecology, Air, Ground water, Land use, Noise,  
Public health, Earth sciences, Economics,  
Sociology, Conservation, Transportation, Impact,  
Maps, Mathematical models, Military facilities  
IDENTIFIERS: Environmental impact, Army  
facilities, EICS (Environmental Impact Computer  
System), Surface water, PE62720A, AS896,  
WU035

(U)

(U)

This report provides a guide to techniques for  
collecting, using and maintaining data about each of  
the 13 environmental technical specialties in the  
Environmental Impact Computer System  
(EICS). The technical specialties are: (1)  
ecology, (2) environmental health, (3) air, (4)  
surface water, (5) ground water, (6) sociology, (7)  
economics, (8) earth science, (9) land use, (10)  
noise, (11) transportation, (12) aesthetics, and (13)  
energy and resource conservation. Acquisition  
techniques are classified by the following general  
categories: (1) secondary data, (2) remote sensing,  
(3) mathematical modeling, (4) field work, (5)  
mapping/maps and (6) expert opinion. A matrix  
identifies the most appropriate techniques for  
collecting information on the EICS technical  
specialties. After selecting a method, the user may  
read an abstract of the report explaining that  
technique, and may also wish to obtain the original  
document for detailed information about applying the  
technique. Finally, this report offers guidelines

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A088 925 5/1 5/3

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN IL

The Wages of Risk: Determining Fair and Reasonable Profit Objectives. (U)

DESCRIPTIVE NOTE: Final rept. for period ending FY79,  
 AUG 80 77P Deponai, John M. , III ;  
 Grubb, Nancy ;  
 REPT. NO. CERL-TR-P-109

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Profits, Contract administration, Risk, Determination, Numerical methods and procedures, Factor analysis, Algorithms, Graphs, Weighting functions, Calibration, Army Corps of Engineers, Contracts, Construction, Engineering (U)

This report documents development of procedures for determining fair and reasonable profit objectives on U.S. Army Corps of Engineers contracts. The report describes and critiques several procedures that were considered during the course of the study. Finally, the recommended procedures which evolved from these earlier proposals are described and evaluated. The report recommends that profit on Corps contracts be computed by evaluating certain factors that reflect the degree of risk associated with a particular contract and a factor that provides contractors a minimum profit. In addition, this report proposes a simpler graphical method for use on architect-engineer (A-E) contracts less than \$100,000. (U)

AD-A088 925

UNCLASSIFIED

PAGE

8

AD-A088 634

UNCLASSIFIED

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## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A088 634 5/1 5/2

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN IL

Zero Base Budget, Civil Works Operation and Maintenance System: Executive Summary. (U)

DESCRIPTIVE NOTE: Final rept.,  
 AUG 80 46P Deponai, John M. , III ;  
 REPT. NO. CERL-TR-P-110  
 CONTRACT: IAO-CWD-M-78-2, IAO-CWD-M-77-4

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Management information systems, \*Army budgets, Civil engineering, Operation, Maintenance, Data processing, Coding IDENTIFIERS: \*Zero base budgeting, CWDOM(Civil Works Operation and Maintenance) (U) (U)

This report provides management level overview of the Zero Base Budget, Civil Works Operations and Maintenance (ZBB/CWDOM) system, a tool to develop funded programs which reflect management objectives. The ZBB/CWDOM system requires that work in support of each project be defined in terms of that base effort which is absolutely essential to the accomplishment of the most significant aspects of the project. Those efforts which go beyond this base effort are expressed in logical increments of work. The ZBB/CWDOM system develops prioritization of the incremental work efforts, ranging in importance from the most needed to the least needed, thereby integrating the work increments of a single project with the work increments of other projects. A single listing of all work elements, regardless of project, is developed in priority order; i.e., decision packages (DPs) which describe the work increments are developed and ranked. This report, in addition to providing a management overview, serves as a guide to the ZBB/CWDOM system codes. (U)

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A088 271 6/6 6/3

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
IL

Ecological Baseline, Fort Hood, Texas.

(U)

DESCRIPTIVE NOTE: Final rept.,

AUG 80 209p

R. S.; Riggins, R. E.; Severinghaus, W. D.; Baran,

REPT. NO. CERL-TR-N-95

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Ecology, \*Aquatic animals, \*Aquatic plants, Surveys, Vertebrates, Mammals, Birds, Reptiles, Amphibians, Vegetation, Phytoplankton, Zooplankton, Sampling, Tables (Data), Classification

(U)

This report presents ecological baseline information on the biota of Fort Hood, TX. Surveys were conducted in fall 1978 and spring 1979 on the terrestrial and aquatic flora and fauna for the purpose of helping Fort Hood personnel more accurately determine the environmental impacts of their military training and related activities.

Representative terrestrial communities were surveyed for vertebrates (mammals, birds, reptiles, and amphibians) and vegetation. Representative aquatic communities were sampled for periphyton, phytoplankton, zooplankton, macrophytes, macroinvertebrates, and fish. Data gathered are in the form of species lists, species composition, density, and/or relative abundance. (Author)

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AD-A088 271

UNCLASSIFIED

PAGE

9

AD-A088 268

UNCLASSIFIED

099062

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A088 268 7/3 7/4

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILIdentification and Quantification of  
Hydrocarbon Products in Effluents.

(U)

DESCRIPTIVE NOTE: Interim rept.,

MAY 80

J.; Fileccia, R. J.; Vogel, R. S.; Mikucki, W.

REPT. NO. CERL-IR-N-91

PROJ: 4A762720A896

TASK: 02

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Hydrocarbons, \*Effluents, \*Quantitative analysis, \*Identification, Army, Chemical composition, Liquid chromatography, Spectroscopy, Data reduction, Gas chromatography, Waste water, Sampling, Environments, Molecular structure, Military facilities, Standards IDENTIFIERS: Hydrocarbon products, Discriminant analysis, Reference samples, PE62720A, AS896, WU009

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This report documents interim results of a study to (1) investigate the capability of infrared (IR) spectroscopy for the identification of specific hydrocarbon products in effluents from washracks and other vehicle service operations at Army installations, and (2) make a comparative evaluation of the Environmental Protection Agency's (EPA) gravimetric (STORET 00556) and IR (STORET 00560) methods of quantifying 'total hydrocarbons' in wastewater. Results have shown that IR spectroscopy can provide a basis for the identification of hydrocarbon products for which reference samples are available. In the initial phase of the work, a scheme of sequential discriminant analysis and pattern recognition was used with reference to a file of military specification (MIL SPEC) hydrocarbon products used in servicing wheel- and track-type Army vehicles. The complexity of IR data reduction was shown to increase rapidly with the number of hydrocarbon products present in a given sample -- a result of a similarity in the hydrocarbon components' molecular structure. The use of gas-liquid chromatography

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UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099052

AD-A088 261 5/3

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN IL

Local Economic Consequences Study (LECS)  
Preliminary User Manual.

DESCRIPTIVE NOTE: Interim rept.,  
JUL 80 74P Hamilton, J. W.; Webster, R.  
D. ;

REPT. NO. CERL-IR-N-94

UNCLASSIFIED REPORT

DESCRIPTORS: \*Military facilities, \*Economic models, Impact, Economic analysis, Computerized simulation, Mathematical prediction, Data processing, Input, Handbooks  
IDENTIFIERS: \*Economic impact, \*LECS(Local Economic Consequences Study), LPN-CERL-F79-22

This study has developed and documented a subsystem of the Environmental Technical Information System (ETIS) which provides easy, systematic access to the U.S. Air Force Local Economic Consequences Study (LECS) methodology. The system has been further implemented and is now available to Air Force users as a pilot system until further modifications and extensions are made. This document provides user instructions and identifies sources of required data. (Author)

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UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A088 260 13/2 6/6

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN IL

Hazardous Waste Surveys of Two Army Installations and an Army Hospital.

DESCRIPTIVE NOTE: Final rept.,  
AUG 80 63P Kraybill, D.; Mullen, T. ;  
Donahue, B. ;

REPT. NO. CERL-TR-N-90

PROJ: 4A762720A896

TASK: B

UNCLASSIFIED REPORT

DESCRIPTORS: \*Waste disposal, \*Wastes(Industrial), \*Wastes(Sanitary engineering), \*Military facilities, \*Army operations, Hazards, Pesticides, Insecticides, Hospitals, Lubricants, Paints, Sludge, Solvents, Surveys, Environmental impact statements  
IDENTIFIERS: Polychlorinated biphenyls, PE62720A, AS896, WU028

This study describes a preliminary assessment of Army hazardous waste production and disposal requirements, as defined by the Resource Conservation and Recovery Act of 1976 and the Environmental Protection Agency's Proposed Guidelines and Regulations and Proposal on Identification and Listing of Hazardous Waste. This study examined hazardous waste production at two military installations and a major Army hospital. Six major hazardous wastes were found: (1) waste oil/petroleum oil lubricant (POL) products, (2) solvent tank bottom sludges, (3) paint wastes, (4) pesticides and insecticides, (5) PCBs, and (6) medical/infectious wastes. Descriptions of the study surveys as they were conducted are given. A hazardous waste survey format, developed during this study for use by Facilities Engineers, is also provided. (Author)

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AD-A088 261

UNCLASSIFIED

PAGE

10

AD-A088 260

UNCLASSIFIED

099062



UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A088 011 13/13 5/1

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN IL

Methods for Developing Habitability Design Criteria. (U)

DESCRIPTIVE NOTE: Interim rept.,

JUL 80 30P Brauer, Roger L. ;  
REPT. NO. CERL-IR-P-111  
PROJ: 4A762721AT41  
TASK: A

UNCLASSIFIED REPORT

DESCRIPTORS: \*Habitability, Management information systems, Standards, Research management, Military facilities, Construction, Pilot studies (U)  
(U)

IDENTIFIERS: PE62721A, AST41, WU001

Habitability design criteria are concerned with the ability of facility users and occupants to perform their missions effectively, safely, and with satisfaction. The purpose of this study is to develop procedures that the Office, Chief of Engineers, Corps of Engineers division and district offices, and contractors can use to systematically prepare habitability design criteria. In the first phase of the study, reported here, a prototype procedure was developed and was pilot tested in preparation of an actual design criteria document. The major conclusion drawn from the pilot test is that the process for developing habitability design criteria is feasible, although improvements are necessary to make it more efficient and to increase the probability of quality in its application. (U)

AD-A088 011

UNCLASSIFIED

PAGE

11

AD-A087 266

UNCLASSIFIED

099062

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A087 266 13/1

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN IL

Selection of Cooling Water Treatment at Military Installations to Prevent Scaling and Corrosion. (U)

DESCRIPTIVE NOTE: Final rept.,

JUN 80 31P Lane, R. ; Kumar, A. ;  
REPT. NO. CERL-TR-M-280

UNCLASSIFIED REPORT

DESCRIPTORS: \*Cooling towers, \*Water treatment, \*Military facilities, Corrosion inhibition, Scaling factors, Air Force facilities, Alkalinity, Slime, Fouling, Evaporation, Chemicals, Sodium compounds, Rates, Blowdown, Microorganisms, Calcium compounds (U)  
(U)

IDENTIFIERS: Scaling products, Scaling chemicals, Recirculating cooling towers (U)

This report offers solutions for scaling, corrosion, and fouling problems in cooling tower systems at Army and Air Force installations. These problems are caused by dissolved minerals in the water and growth of algae or slime within the system. The scaling product (Sp) of cooling tower water can be expressed as a product of the calcium hardness (Ca) and alkalinity (M) expressed as CaCO<sub>3</sub>. The Sp of water at major U.S. Army Training and Doctrine Command and U.S. Army Forces Command installations varies from 504 to 45,640. The State of Illinois has tested recently developed treatment products made by commercial enterprises. The simplest method of cooling tower treatment is blowdown control. A recirculating cooling tower evaporates 1.5 gallons of water per hour per ton (5.67 1/0.9 MT), while an absorber evaporates 3 gal/hr/ton (11.12 1/0.9 MT). The blowdown rate equals the evaporation rate divided by cycles of concentration minus 1. The makeup water equals the amount of evaporation plus blowdown. The maximum cycles of concentration are limited by the scaling chemicals in the water; it is considered uneconomical to run less than 3 cycles of concentration. For cooling towers less than 20 tons (18.1 MT), the (U)

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A086 526 6/6 6/3

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN IL

Guidelines for Terrestrial Ecosystem Survey.

(U)

DESCRIPTIVE NOTE: Final rept.,

MAY 80 218P Severinghaus, William D. ;  
REPT. NO. CERL-TR-N-89

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Ecosystems, \*Ecology, \*Surveys, Data acquisition, Environmental impact statements, Vegetation, Animals, Estimates, Mammals, Birds, Bibliographies, Site selection, Tables(Data), Plants(Botany), Sampling

(U)

This report provides guidelines that will enable Army installations to compile and maintain enough information on flora and fauna to produce satisfactory environmental impact assessments and statements. The report outlines a three-stage method for data acquisition and contains appendices listing literature resources and specialists. By completing Stage I, users create a series of maps, overlays, and tables that give an estimate of the amount of habitat, types of vegetation, and types of animals existing on the installation. Stage II involves a field verification of the information from Stage I. Stage III requires the explicit documentation of population densities and other ecological parameters of the various organisms on the installation. (Author)

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AD-A086 526

UNCLASSIFIED

PAGE

12

AD-A086 051

UNCLASSIFIED

099062

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A086 051 10/2 10/1

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN IL

Investigation of Methods to Predict Thermal Stratification and Its Effect on Solar Energy System Performance.

(U)

DESCRIPTIVE NOTE: Special rept.,

MAY 80 33P Sliwinski, B. J. ;  
REPT. NO. CERL-SR-E-160  
PROJ: 4A761102AT23  
TASK: B

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Solar energy, \*Predictions, \*Thermal conductivity, \*Stratification, Physical properties, Performance(Engineering), Energy storage, Correlation techniques, Inlets, Velocity, Storage tanks, Geometry, Fluids, Liquids  
IDENTIFIERS: Thermal stratification, Solar energy systems, Outlet conditions, PE61102A, AST23, WU010

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THIS REPORT DESCRIBES A STUDY TO IDENTIFY CHARACTERISTICS WHICH INDUCE THERMAL STRATIFICATION IN LIQUID THERMAL STORAGE, AND TO EVALUATE SOLAR ENERGY SYSTEM PERFORMANCE AS A FUNCTION OF THE DEGREE OF STRATIFICATION. It was determined that for efficient use of thermal stratification it was necessary to (1) introduce hot fluid at the top of the liquid storage tank and to add cold fluid at the bottom of the tank, (2) with a cylindrical tank, have a length/diameter ratio equal to or greater than 2.0, (3) use mathematical correlations to determine allowable fluid inlet velocities and temperatures, and (4) use storage tank material that has a thermal conductivity less than that of the storage fluid. The mathematical correlations described in this report allow stratification occurrence to be predicted and can be used to estimate the sharpness of the thermocline based on tank inlet and outlet conditions, fluid properties, and storage tank geometry. (Author)

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## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A085 991 5/1 9/2

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN IL

Interagency/Intergovernmental Coordination for Environmental Planning (IICEP): Systems Considerations.

(U)

DESCRIPTIVE NOTE: Technical rept.,

MAY 80 107P Webster, Ronald Dwight ;  
Putnam, D. E. ;  
REPT. NO. CERL-TR-N-87

## UNCLASSIFIED REPORT

Availability: Document partially illegible.  
DESCRIPTORS: \*Environmental management, \*Information systems, Air Force planning, Cooperation, State government, United States Government, Directories, Computer applications, Computer programs

(U)

The primary purpose of this report is to document the organization and command structure of a computerized system for providing access to information necessary for the Interagency/Intergovernmental Coordination for Environmental Planning (IICEP) requirements as set forth in Air Force Environmental Planning Bulletin 14. A secondary objective is to identify problems associated with the IICEP system's implementation and to recommend pertinent solutions. Preliminary data acquired by Air Force contractors were obtained and used as a basis for developing the software structure necessary to handle these data. This report describes IICEP and explains the development of the organization, structure, and software of the pilot computerized system. It will form the basis for evaluating the system and further clarifying the need for data refinement and update. (Author)

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AD-A085 991

UNCLASSIFIED

PAGE

13

AD-A085 573

UNCLASSIFIED

099062

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A085 573 13/1

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN IL

Comparison of Building Loads Analysis and System Thermodynamics (BLAST) Computer Program Simulations and Measured Energy Use for Army Buildings.

(U)

DESCRIPTIVE NOTE: Interim rept.,

MAY 80 43P Herron, Dale ; Windingland, Larry M. ; Hittle, Douglas C. ;  
REPT. NO. CERL-IR-E-161  
PROJ: 4A762731AT41

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Buildings, \*Energy consumption, Military facilities, Office buildings, Clinical medicine, Dentistry, Electric power, Measurement, Computerized simulation, Comparison IDENTIFIERS: BLAST (Building Loads Analysis and Systems Thermodynamics), Dental clinics, PE62731A, AST41, WU001

(U)

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This report describes an analysis of actual measured energy consumption vs energy consumption simulated by the Building Loads Analysis and System Thermodynamics (BLAST) computer program. A dental clinic and a battalion headquarters and Classroom building were modeled; comparisons of the BLAST output using onsite weather and measured energy consumption data are made for the two buildings. The report includes tables and figures describing how well the BLAST program calculates the building's internal electrical load and, by comparing simulation results with measured values, predicts the building's cooling load and chiller performance as described by the chiller electrical energy consumption. (Author)

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## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A085 342 11/6 13/8

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
IL

Determination of the Effect of Current and  
Travel Speed of Gas Metal-Arc Welding on  
the Mechanical Properties of A36, A516, and  
A514 Steels.

(U)

DESCRIPTIVE NOTE: Final rept.,

MAY 80 42P Weber, R. ;

REPT. NO. CERL-TR-W-278

PROJ: 4A762731AT41

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Carbon steels, \*Gas metal arc welding,  
\*High strength, \*Mechanical properties, Weldments,  
Tensile properties, Velocity, Butt welding,  
Pressure vessels, Joints, Dynamic tests, Yield  
strength, Heat, Impact tests, Electrical  
conductivity, Teaming, Transition temperature,  
Welds, Technology transfer, Cooling

(U)

IDENTIFIERS: Steels A514, Steels A516,  
Steels A36, Nugget area, Plate materials,  
Travel speed, Test specimens, PE62731A,  
AST41, WU005

(U)

This study was performed to determine the limits on  
current and travel speed-in particular, nugget area-  
as defined by the results of tests to determine  
tensile and impact properties of butt joint welds  
produced by fully automatic gas metal-arc welding  
(GMAW) in carbon steel (A36), pressure-vessel  
steel (A516), and high-strength, low-alloy steel  
(A514).

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AD-A085 342

UNCLASSIFIED

PAGE

14

AD-A085 298

UNCLASSIFIED

099062

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A085 298 9/3 13/1 5/1

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
IL

An Analysis of Electrical Consumption at  
Representative Army Installations.

(U)

DESCRIPTIVE NOTE: Interim rept.,

MAY 80 81P Windingland, L. M. ;

REPT. NO. CERL-IR-E-163

PROJ: 4A762731AT41

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Military facilities, \*Electric power,  
\*Consumption, Variations, Army operations,  
Buildings, Colorado, Virginia, Measurement,  
Meteorological phenomena, Energy conservation,  
Inspection

(U)

IDENTIFIERS: \*Fort Carson, \*Fort Belvoir,

(U)

PE62731A, AST41, WU004

This report describes analysis of monthly and daily  
electrical energy consumption data collected over 2  
years from 8 electrical feeders at Fort Carson  
CO, and 20 different Army buildings at Fort  
Carson and at Fort Belvoir, VA. The work  
was conducted to determine why electrical energy  
consumption has been increasing at Army  
installations, and to provide a basis for determining  
methods to reduce consumption. It was determined  
that many Army buildings have a high minimum  
electrical usage (minimum demand) that amounts to up  
to 75 percent of total annual consumption. Tables  
and graphs are provided which amplify the  
significance of this minimum demand. It was  
concluded that a shift from emphasizing a reduction  
in occupant usage of electrical energy to a  
concentrated effort to minimize the continuous  
electrical usage caused by building operation and  
heating, ventilating, and air-conditioning (HVAC)  
systems should reduce electrical consumption at  
Army installations. (author)

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UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A085 188 11/10 11/3 13/13

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN IL

Roofing Repair Materials for Korean Relocatable Buildings - Test and Evaluation.

DESCRIPTIVE NOTE: Final rept.,  
MAY 80 17P Muncy, Robert E. ;  
REPT. NO. CERL-TR-M-2

UNCLASSIFIED REPORT

DESCRIPTORS: \*Roofs, \*Repair, \*Neoprene, South Korea, Barracks, Panels, Sealing compounds, Failure(Mechanics), Leakage(Fluid), Rubber seals, Cyclic tests, Loads(FORCES), Tensile strength, Elongation, Hardness, Adhesion, Exposure(General), Ultraviolet radiation, Condensation, Test methods

This report presents the results of tests of two commercial roof repair materials, Contourflash and Polysal, to determine how they would perform in the roof repair of Army relocatable barracks in Korea. All tests were conducted with the existing roof sealant in place. (Author)

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UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A084 717 15/5

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN IL

Developing Facility Information for Combat Equipment Group -- Europe (CEGE) Sites.

DESCRIPTIVE NOTE: Final rept.,  
MAY 80 25P Porter, Robert ;  
REPT. NO. CERL-TR-E-165  
PROJ: 4A762731AT41  
TASK: F

UNCLASSIFIED REPORT

DESCRIPTORS: \*Military facilities, West Germany, Army operations, Army equipment, Warehouses, Construction, Military requirements, Military planning, Sites, Storage  
IDENTIFIERS: \*CEGE storage, PE62731A, AST41, WU006

(U)

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This report presents the methodology and the information sources used to generate comprehensive, generic facility information for the design and construction of future Combat Equipment Group - Europe (CEGE) installations. Three types of information were collected and documented: (1) POMCUS (Prepositioned Materiel Configured to Unit Sets) related supply and equipment data for 81 military units that potentially could be assigned to future CEGE installations, (2) narrative extracts of articles and research reports written to improve POMCUS system facilities, and (3) specific space and work station information from regulation documents and current CEGE facility occupants. The information document developed is entitled, Type II Forward Storage Site Facilities--POMCUS System (September 1979). (Author)

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AD-A085 188

UNCLASSIFIED

PAGE

15

AD-A084 717

UNCLASSIFIED

099062

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A084 539 13/3

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
IL

Housing Maintenance Contract guide.

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DESCRIPTIVE NOTE: Final rept.,

MAY 80 246P Nav, Joyce L.; Blakey-

Smith, Martha A.; Brown, David W.; Reesor,

Donis J.; Blackmon, Robert B.;

REPT. NO. CERL-TR-P-107

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Housing(Dwellings), Maintenance,  
Contracts, Preparation, Army, Military  
facilities

IDENTIFIERS: \*Family housing

(U)

(U)

This report describes how to prepare family housing maintenance contracts for U.S. Army installations. Guidance for developing and preparing each section of the contract and specifications which the reader may use to reduce contract preparation time are provided.

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## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A084 188 5/9 5/1 13/2

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILDirectory of Construction Engineering  
Programs in Organization and Management of  
Construction.

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APR 80 27P

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Construction, \*Management,  
\*Education, Civil engineering, Surveys

(U)

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IDENTIFIERS: \*Construction management

This first edition of a directory of education programs in engineering and management covers 20 programs in 11 countries. CIB Working Commission 65, Organization and Management of Construction, plans to update the directory periodically. (Author)

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AD-A084 539

UNCLASSIFIED

PAGE

16

AD-A084 188

UNCLASSIFIED

099062

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A083 683

13/6

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILFacility Information for: U.S. Army  
Tactical Vehicle Organizational and Support  
Maintenance.

(U)

DESCRIPTIVE NOTE: Final rept.,

APR 80 158P Porter, Robert ; Brauer, Roger  
; Dressel, David ; Fileccia, Robert ; Kloster, Sharen

REPT. NO. CERL-TR-P-108

PROJ: 4A762731AT41, 4A762720A896

TASK: D, T2

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Military vehicles, \*Maintenance  
management, Repair shops, Army planning, Workplace  
layout, Maintenance equipment  
IDENTIFIERS: PE62720A, AS896, WU027,  
PE62731A, AST41, WU041

(U)

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This document provides a comprehensive set of planning concepts pertinent to tactical vehicle maintenance construction projects. These concepts are applicable to all generic functions associated with both Organizational and Direct Support maintenance for most Army vehicles. The categories of information contained in this document relate Army policies to the activities, personnel, and equipment required to accomplish a specific function. The information in this document has been integrated into a four-page format, so that all information related to a particular function can be viewed together. Eight types of information are provided: function, policy, issues, assumptions, activities/personnel/equipment, requirements, criteria, and guidance. The document was organized in this manner to permit ready incorporation of applicable information into appropriate Design Guides, Technical Manuals, and standardized design criteria. (Author)

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AD-A083 683

UNCLASSIFIED

PAGE

17

AD-A083 321

UNCLASSIFIED

099062

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A083 321

20/1

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILTrue-Integrating Environmental Noise  
Monitor and Sound-Exposure Level Meter.  
Volume IV. Mechanical Construction and  
Electrical Check Out.

(U)

DESCRIPTIVE NOTE: Final rept.,

MAR 80 57P Averbuch, A. J. ; Brown, R. ;  
REPT. NO. CERL-TR-N-41-VOL-4

PROJ: 4A762720A896

TASK: 03

## UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: See also Volume 1, AD-A060

958.

DESCRIPTORS: \*Acoustic measurement, Noise(Sound),  
Monitors, Sound, Exposure(General),  
Level(Quantity), Measuring instruments,  
Assembly, Checkout procedures

(U)

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IDENTIFIERS: WU001, AS896, PE62720A

This volume gives the assembly, adjustment, and checkout procedures necessary to construct a U.S. Army Construction Engineering Research Laboratory (CERL) True-Integrating Environmental Noise Monitor and Sound-Exposure Level Meter. It describes the monitor's mechanical layout, wiring guidelines, adjustments to components to bring various circuits into tolerance, and steps for verifying the correct operation of the monitor. Also included are test programs to be executed by the internal microprocessor to exercise the internal circuit to help checkout or repair. (Author)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A083 320 20/1 9/2

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
IL

True-Integrating Environmental Noise  
Monitor and Sound-Exposure Level Meter.  
Volume III. Microprocessor Program and Data  
Interface Description. (U)

DESCRIPTIVE NOTE: Final rept.,  
MAR 80 178P Averbuch, A. J.; Little, L.  
M. ;

REPT. NO. CERL-TR-N-41-VOL-3  
PROJ: 4A762720A896  
TASK: 03

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: See also Volume 4, AD-A083  
321.

DESCRIPTORS: \*Acoustic measurement,  
\*Microprocessors, \*Computer programs,  
Noise(Sound), Monitors, Sound,  
Exposure(General), Level(Quantity), Measuring  
instruments, Microprogramming, Input output  
devices (U)  
IDENTIFIERS: WU001, AS896, PE62720A (U)

This report describes the internal microprocessor  
program used to operate the U.S. Army  
Construction Engineering Research Laboratory  
(CERL) True-Integrating Environmental Noise  
Monitor and Sound-Exposure Level Meter.  
Several data interface accessories are also  
described; complete program listings are included.  
(Author) (U)

AD-A083 320

UNCLASSIFIED

PAGE

18

AD-A083 317

UNCLASSIFIED

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UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A083 317 10/1

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
IL

Densified Biomass as an Alternative Army  
Heating and Power Plant Fuel. (U)

DESCRIPTIVE NOTE: Final rept.,  
MAR 80 87P Hathaway, S. A.; Lin, J.  
S.; Mahon, D.; Magrino, T.; Duster, K.;  
REPT. NO. CERL-TR-E-158

UNCLASSIFIED REPORT

DESCRIPTORS: \*Wood, \*Pellets, \*Biodeterioration,  
\*Heating, \*Electric power plants, Fuels, Wood  
pulp, Economic analysis, State of the art,  
Literature surveys, Storage, Environments, Army,  
Production (U)  
IDENTIFIERS: Biomass energy, Densified biomass,  
Experimental study, Wood pellets, Densification,  
LPN-CERL-79-1 (U)

This investigation evaluated the technical and  
economic potential of using densified biomass  
(principally wood pellets) as a coal substitute  
Army heating and power plants. The report reviews  
Department of Defense (DOD) experience with and  
tests of wood pellets; production of wood pellets  
(excluding silvicultural aspects); handling, storing,  
and feeding; combustion; major environmental  
considerations; and economics of use. (U)



## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A082 773 13/2 10/2 21/4

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN IL

Production and Use of Densified Refuse-Derived Fuel (DRDF) in Military Central Heating and Power Plants. (U)

DESCRIPTIVE NOTE: Final rept.,

MAR 80 104P Hathaway, S. A. ; Lin, J.

S. ; Manon, O. L. ; West, B. ; Marsh, R. ;

REPT. NO. CERL-TR-E-159

CONTRACT: MIPR-FY8952-78-65012

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Solid wastes, \*Fuels, Military facilities, Heating plants, Electric power plants, Military applications, Combustion, Waste disposal, Refuse collection, Compacting, Resource management, Costs, State of the art, Risk

IDENTIFIERS: DRDF(Densified Refuse Derived Fuels) (U)

IAC ACCESSION NUMBER: PL-901642

IAC DOCUMENT TYPE: PLASTIC HARD COPY--

This study appraises the state of the art of production and use of densified refuse-derived fuel (DRDF) in military-scale (25 to 200 MBtu per hour) central heating and power plants. It found that few performance and economic data exist for military-scale DRDF production unit operations.

Although theoretical modeling of some operations (shredding, air classifying, pelletizing) is generally well developed, field verification of the models is belated by continuous alterations of in-plant equipment design to improve performance, lack of a uniform method to characterize refuse input to processes, and absence of an industry-wide commitment to monitor equipment performance. Although nearly two dozen DRDF tests have been conducted, they have been short-term experiments that have not followed the scientific method and have been inconclusive regarding long-term DRDF use in military heating and power plants. As a result, proper and realistic specification of DRDF for military procurement cannot be made. The study also found that lack of operating data, standard analytical procedures, and experience in military-scale DRDF systems engender (U)

AD-A082 773

UNCLASSIFIED

PAGE

19

AD-A082 502

UNCLASSIFIED

099062

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A082 502 13/2

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN IL

Tertiary Treatment of Wastewater Using a Rotating Biological Contactor System. (U)

DESCRIPTIVE NOTE: Final rept.,

FEB 80 43P

Smith, Edgar D. ; Poon, C.

P. C. ; Mikucki, Walter ; Bandy, John T. ;

REPT. NO. CERL-TR-N-85

PROJ: 4A762720AB96

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Sewage treatment, \*Waste water, Operational effectiveness, Costs, Reliability, Army, Army equipment, Ammonia, Nitrogen, Quality, Standards

IDENTIFIERS: Rotating biological contactors, PE62720A, AS896, WU017 (U)

The use of rotating biological contactors (RBCs) to upgrade sewage treatment plants is relatively new in the United States, and only a few full-scale RBC secondary plants have been in operation for more than 1 year. RBCs appear to be simple to operate and maintain, cost competitive, reliable, economical, and compatible for retrofitting existing Department of Army (DA) sewage treatment plants without extensive renovation. However, data are scarce regarding RBC retrofitting strategies for upgrading existing secondary trickling-filter sewage treatment plants for additional biochemical oxygen demand (BOD) and nitrogen removal to meet current and anticipated National Pollution Discharge Elimination System (NPDES) requirements. In addition, because of differences in manufacturers' inherent design philosophies, well-defined theory of design and operation is accepted by all manufacturers. The overall objective of this investigation was to evaluate the performance of an RBC wastewater treatment process as an upgrading-retrofit unit process for BOD reduction and nitrification. Using a 0.5-m RBC plant at an existing full-scale trickling-filter plant, the flexibility, feasibility, and characteristics for BOD reduction and nitrification potential were determined under a variety of hydraulic, organic, an (U)

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A080 609 5 1 13 13

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN IL

Total Contract Maintenance for Mannheim Family Housing.

(U)

DESCRIPTIVE NOTE: Final report, 28-Sep-79.

JAN 80 126P Available to: Brown, David

W 1

REPT. NO. CERL-TR-P-106

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Maintenance management.

\*Housing engineering. \*Construction. Army.

\*Construction and maintenance. \*Costs.

Construction, Europe. Engineering. Cost

estimates.

IDENTIFIERS: LPN-CA-89-4510-7-TR

This report documents a U.S. Army

Construction Engineering Research Laboratory

CERL evaluation of a family housing maintenance

contract used as a test case by the U.S. Army

Installation Support Activity Europe

(USAIAFE), the total maintenance contract for

Barracks Extension, Mannheim, Germany.

Germany was completed in 1979. Army and

Waffenamt (German Armaments Administration) Germany

respective contracts were being processed by the

contractors as a basis for

comparison of

costs. A direct cost/quantity comparison of

family housing maintenance (FMMA)

expenditures was possible because all service

contracts had not yet been fully executed. The results of the

CEC analysis indicate that, considering the feasible

and that the FY78 budget had not yet been approved, savings in the

Mannheim barracks extension was 4.2%. It

was determined that the Government must have both a

good contract document and adequate monitoring of

contract performance to realize maintenance cost

savings. (Author)

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AD-A080 609

UNCLASSIFIED

PAGE

20

AD-A080 429

UNCLASSIFIED

099062

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A080 429 13/2 5/1

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN IL

Compilation of Operational Blast Noise Data.

(U)

DESCRIPTIVE NOTE: Final report.

JAN 80 111P McBryan, J. ;

REPT. NO. CERL-TR-N-82

PROJ: 4A762720A896

TASK: A01

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Combat noise. \*Noise pollution.

\*Blast. \*Military facilities. Maps. Overlays.

Mapping. Land use. Population. Density.

Contours. Army operations. Army planning

IDENTIFIERS: Noise zone maps, AS896,

PE62720A

(U)

(U)

This report presents the means for acquiring operational blast noise information to produce LCDn annoyance contours. Forms introduced and explained to facilitate the compilation of data include the Target Data Sheet, Firing Point Data Form, and Attachment Sheet. Overlays to be constructed in order to evaluate the contours consist of generalized land-use and population density map overlays. (Author)

(U)

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
IL

**Modification and Extension of the Environmental  
Technical Information System (ETIS) for the  
Air Force.**

Year	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100
1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100	

nearby, f

DEC 79 38P Webster  
Patzer, J. G. : Van Weringh, J. ;  
REPT. NO. CERL-TR-N-81

UNCLASSIFIED REPORT

[illegible]

Swedish, 1910-1915

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10

AD-A079 441

UNCLASSIFIED

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UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099052

AD-A078 426

13 13 11/6

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILCorrosion of Steel Piling in Seawater:  
Buzzards Bay, 1945-1978.

(U)

DESCRIPTIVE NOTE: Interim report.

NO. 79 155P Kearney, F. J.

REPT. NO. CERL-IR M-275

UNCLASSIFIED REPORT

DESCRIPTORS: \*Pile structures. \*Sea water corrosion. Steel. Coastal regions. Erosion. Data acquisition. Electrical measurement. Test methods. Corrosion. Cathodic protection.

IDENTIFIERS: Buzzards Bay. LPA-CWIS-31204

(U)

(U)

To determine the effect of geography and temperature on corrosion of pilings that support various types of structures in coastal areas, a 5-year study is being conducted at Dam Neck, VA, LaCusta Island, FL, and Buzzards Bay, MA. This report (1) summarizes the results of piling at Buzzards Bay. (2) compares these results with the results of the Dam Neck and LaCusta investigations, and (3) provides electrochemical field test data that will be useful to researchers concerned with coastal structural design. The electrical measurements of corrosion at Buzzards Bay were found to differ drastically from LaCusta and Dam Neck results. These differences were attributed to site-specific factors, and have tentatively been attributed to the high degree of marine life fouling noted on pilings at the Buzzards Bay test sites. It is recommended that further inspections include examinations of the pilings by marine biologists. (Author)

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A078 422

13/10

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILHabitability Improvements for Aircraft  
Carrier Messdecks.

(U)

DESCRIPTIVE NOTE: Final report.

OCT 79 77P Porter, Robert L. ;

REPT. NO. CERL-TR-E-156

UNCLASSIFIED REPORT

DESCRIPTORS: \*Aircraft carriers. Habitability. Modification. Perception (Psychology). Crews

(U)

(U)

IDENTIFIERS: CV 60 Vessel

This report discusses the design and evaluation of improvements to messdeck layouts and other physical components on the U.S. Navy carrier ship, U.S.S. Saratoga. These components were designed to minimize the increased negative impacts of three 'given' conditions that result from a substantial addition of crew and equipment to a fixed-space environment. The 'given' conditions are: (1) high density, (2) multi-use of spaces, and (3) nondiner circulation through messdeck areas. This research also considered possible applications of the improvements to other U.S. Navy carriers. The components were designed to improve the crew's perception of privacy, efficiency, comfort, and dining area image. Surveys of the crew after these improvements had been implemented indicated positive user response to the modifications. (Author)

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AD-A078 626

UNCLASSIFIED

PAGE

22

AD-A078 422

UNCLASSIFIED

099062

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A076 552 5/9

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN IL

An Analysis of Military Migration in the United States.

(U)

DESCRIPTIVE NOTE: Special rept.,  
OCT 79 44P Becker, D. G.; Webster, R.

D. ;

REPT. NO. CERL-SR-N-79

PROJ: ILIR

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Migration, Military personnel, Military facilities, Civilian population, United States, Department of Defense

IDENTIFIERS: Military migration, Civilian migrants, Army-induced migration, PE61101F

(U)

(U)

The data in this report describe a positive relationship between military migration and civilian migration in communities surrounding Army installations. This relationship is determined by the size of the military labor force in relation to the size of the civilian labor force. The number of civilian migrants into or out of a county between 1965 and 1970 can be estimated from data reflecting the size of the military labor force and the number of military migrants involved. The data used in this research are too outdated to be of real significance to accurate population projections for Army-induced migration, but they do support the contention that civilian migration is directly related to military migration and that the relationship in many areas in the United States is quite strong.

(U)

AD-A076 552

## UNCLASSIFIED

PAGE

23

AD-A076 332

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A076 332 11/9 11/7 13/13

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN IL

Investigation of Rapidly Deployable Plastic Foam Systems. Volume I. System Development.

(U)

DESCRIPTIVE NOTE: Final rept.,

OCT 79 41P Smith, Alvin ;

REPT. NO. CERL-TR-M-272-VOL-1

CONTRACT: MIPR-FY1456-78-00006, MIPR-FY1456-79-00002

## UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: See also Volume 2, AD-A076 310.

DESCRIPTORS: \*Polyurethane resins, \*Foam,

\*Construction materials, Deployment, Shock absorbers, Time, Systems engineering, Aviation safety

(U)

IDENTIFIERS: RPRV(Remotely Powered Recoverable Vehicle)

(U)

IAC ACCESSION NUMBER: PL-034401

IAC DOCUMENT TYPE: PLASTIC -HARD COPY---

Volume I of this report (1) presents the findings of a study conducted to develop a low-density polyurethane foam system that is deployable within 5 seconds, and (2) documents a study of foam/fabric deployable shapes. An especially fast-reacting foam formulation was devised, hardware for delivery and mixing of foam chemicals was designed and evaluated, various geometric shapes of constant volume that the foam could be formed into were investigated, and the impact loading characteristics of the foam at various times soon after generation were studied.

Fabrication of fabric foam cylinders was also studied. Volume II documents a study of fabric-skinned, foam-filled cylindrical beams and an analytical/experimental study of their bending properties. Results of the studies show that a low-density polyurethane foam system that will deploy within 5 seconds is practical to generate and to form into geometrically shaped lightweight fabric bags. The foam exhibits good impact absorption properties very quickly after formation; these properties can be used to attenuate rapidly applied loads of low to

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## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 039062

AD-A076 310 11/9 11/7 13/3

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN IL

Investigation of Rapidly Deployable Plastic Foam Systems. Volume II. Nonlinear Deformation and Local Buckling of Kevlar Fabric/Polyurethane Foam Composites.

(U)

DESCRIPTIVE NOTE: Final rept.,

OCT 79 49P Smith, Alvin; Wang, S. S.

; Kuo, A. Y.;

REPT. NO. CERL-TR-M-272-VOL-2

CONTRACT: MIPR-FY1456-78-00006, MIPR-FY1456-79-00002

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: See also Volume 1, AD-A076 332.

DESCRIPTORS: \*Polyurethane resins, \*Foam, Construction materials, Cylindrical bodies, Buckling, Deformation, Physical properties, Civil engineering, Beams (Structural)

(U)

(U)

IAC ACCESSION NUMBER: PL-034400

IAC DOCUMENT TYPE: PLASTIC -HARD COPY--

Volume I of this report (1) presents the findings of a study conducted to develop a low-density polyurethane foam system that is deployable within 5 seconds, and (2) documents a study of foam/fabric cylinders as potential structural members. An especially fast-reacting foam formulation was devised, hardware for delivery and mixing of foam chemicals was designed and evaluated, various geometric shapes of constant volume that the foam could be formed into were investigated, and the impact loading characteristics of the foam at various times soon after generation were studied. Fabrication of fabric foam cylinders was also studied. Volume II of this report documents a study of fabric-skinned, foam-filled cylindrical beams and an analytical/experimental study of their bending properties. Results of the studies show that a low-density polyurethane foam system that will deploy within 5 seconds is practical to generate and to form into geometrically shaped lightweight fabric bags. The foam exhibits good impact absorption properties very (U)

AD-A076 310

UNCLASSIFIED

PAGE

24

AD-A075 801

UNCLASSIFIED

099062

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A075 801 5/3 13/13

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN IL

Ireland/United Kingdom-Research Consortium. Report Number 1. The Construction Industry-A Perspective.

(U)

FEB 79 78P Boland, Thomas F.;

UNCLASSIFIED REPORT

DESCRIPTORS: \*Industries, Construction, Great Britain, Ireland, Resource management

(U)

(U)

IDENTIFIERS: \*Construction industry

This report identifies the construction industry as an entity in the sociocultural realm and develops a perspective of it by: describing it in general; developing of it a notational physical structure and form; identifying the purpose for which it and its component entities exist; describing parameters that may be used to assess the degree to which it and its entities fulfill their purpose; identifying it and its component resource requirements and the outputs expected of them; and examining its ability to monitor and adapt in response to internal and external influences. (Author)

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A075 746 16/1 13/13 11/9 16/4.2

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILFoam Overhead Cover Support (FOCOS) System  
for Dismounted and Mounted TOW Positions.

(U)

DESCRIPTIVE NOTE: Final rept.,

AUG 79 56P Smith, Alvin ;

REPT. NO. CERL-TR-M-269

PROJ: 4A762619AT41

TASK: 08

UNCLASSIFIED REPORT

DESCRIPTORS: \*Protective coverings, \*Foam,  
\*Polyurethane resins, \*Ground support equipment,  
\*Surface to surface missiles, Soils, Support,  
Survival (General), CONSTRUCTION, Kits, Field  
equipment, Field tests, Guided missile personnel  
IDENTIFIERS: TOW missiles, FOCOS (Foam Overhead  
Cover Support Systems), PE62619A, ASI41,  
WU002

(U)

(U)

IAC ACCESSION NUMBER: PL-033921

IAC DOCUMENT TYPE: PLASTIC -HARD COPY--

This report presents the results of a concept  
development study of the use of polyurethane foam in  
constructing protective overhead cover support for  
TOW fighting positions. Two principal methods of  
cover support fabrication were considered: 1. A two  
component spray polyurethane fabrication foam  
applied on a prepared form. 2. Hand-mixed  
polyurethane foam expanded within a fabric form. In  
both cases, an arch-shaped support with a 4-ft (1.2-  
m) radius and a 5-ft (1.5-m) length was made. The  
foam-filled fabric form was selected as having the  
highest potential for successful application by  
weapon crews. Subsequent field tests of the  
selected system demonstrated that a TOW weapon crew  
can erect an effective cover support system in field  
without special tools or equipment. (Author)

(U)

IAC SUBJECT TERMS: P--(U)Rigid foam, Urethanes,  
Protective coatings, Coverings, Testing, Spray  
applications, Temperature effects, Military  
applications, Shelters, Low temperature effects,  
Fabrics, Foam density, Missiles, Domes, ZZ  
Unlimited.;

AD-A075 746

UNCLASSIFIED

PAGE

25

AD-A075 607

UNCLASSIFIED

099062

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A075 607 13/1 13/2 14/2

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILShock Resistance of Air-Conditioning Units  
Test Report for Ellis and Watts Company,  
Cincinnati, Ohio.

(U)

DESCRIPTIVE NOTE: Special rept.,

SEP 79 92P

Gambill, James B.; Fisher,

Walter E.;

REPT. NO. CERL-SR-M-273

UNCLASSIFIED REPORT

DESCRIPTORS: \*Air conditioning equipment,  
\*Earthquake engineering, \*Environmental tests,  
Seismic data, Vibration, Shock resistance,  
Accelerometers, Test methods, Instrumentation,  
Commercial equipment, Specifications

(U)

This report presents the results of seismic  
qualification tests performed on air-conditioner  
units manufactured by the Ellis and Watts  
Company, Cincinnati, Ohio, to evaluate the  
units' capability to meet Tennessee Valley  
Authority seismic design requirements. Two units  
were tested on the CERL Biaxial Shock Test  
Machine. Functional performance remained normal  
for all units during the test run. (Author)

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DOC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A075 511 13/13 5/1 15/3

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN IL

Real Estate Cost Estimating Techniques for PL 91-646 Relocation Costs.

(U)

DESCRIPTIVE NOTE: Final rept.,

SEP 79 191P Poskus, U. R.; Stamas, G.

D.; Stawarz, S. P.;

REPT. NO. CERL-TR-P-103

CONTRACT: IAO-RE-77-1, IAO-RE-77-1

UNCLASSIFIED REPORT

DESCRIPTORS: \*Housing(Dwellings), \*Cost estimates, \*Army Corps of Engineers, Relocation, Least squares method, Computer programs, Military engineering, Public relations, Construction Benefits

IDENTIFIERS: Real estate

(U)  
(U)

This report documents the development of a predicting model which would better estimate the amount of money required by Districts to compensate individuals relocated from their residences, businesses, or farms as a result of U. S. Army Corps of Engineers construction. The predictions are the result of applying the least squares method to previous District and state payment data. Three different approaches for developing the model were attempted. The approach which used Docket Sheet data broken out by Fiscal Years 72 through 76 was selected as having the highest probability for success. Using the information from these Docket Sheets, average total payments were computed by state and by District, and average values were found for each of 15 payment categories. (Author)

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AD-A075 511

UNCLASSIFIED

PAGE

26

AD-A075 204

UNCLASSIFIED

099062

UNCLASSIFIED

DOC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A075 204 13/13 8/11

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN IL

Current and Tentative Seismic Design Provisions for Buildings: Preliminary Comparisons.

(U)

DESCRIPTIVE NOTE: Final rept.,

AUG 79 57P Prendergast, James D.;

Fisher, Walter E.;

REPT. NO. CERL-TR-M-270

PROJ: 4A762731AT41

TASK: 04

UNCLASSIFIED REPORT

DESCRIPTORS: \*Earthquake resistant structures, \*Seismic data, Structural engineering, Earthquake engineering, Experimental design, California, Requirements, Buildings, Army Corps of Engineers, Construction, Strength(General) IDENTIFIERS: Building codes, PE62731A, AST41, WU003

(U)

(U)

This report compares current and tentative seismic design provisions for two types of buildings: (1) Letterman Army Hospital, an existing 10-story, reinforced concrete building located in the Presidio of San Francisco, CA, whose design was based upon the 1964 Uniform Building Code (UBC), and (2) a three-story, ductile moment resistant steel frame building located in a region of high seismicity and designed as an essential building. The comparisons for Letterman Hospital include the magnitude and distribution of the seismic story shears and lateral deflections for the 1964 UBC, the 1975 Structural Engineers Association of California (SEAC) provisions the 1978 Applied Technology Council's tentative design provisions (ATC-3) the TM 5-809-10 Appendix proposed design provisions, Agababian Associates' (AA) two-dimensional time history modal analysis, U.S. Army Construction Engineering Research Laboratory's (CERL) three-dimensional response spectrum modal analysis and PMR Systems Engineering Incorporated's (PMB) three-dimensional response spectrum modal analysis. The comparisons for the three-story,

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 039062

AD-A074 902 13/13

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
IL

Decor Guide for Enlisted Personnel Dining  
Facilities.

(U)

DESCRIPTIVE NOTE: Technical rept.,

JUL 79 146P Porter, Robert L. ; Bershad,  
Blaine D. ; Hintz, Norman ; Mark, Jeffrey S. ;  
REPT. NO. CERL-TR-E-150  
CONTRACT: IAD-DRXNN-76-174

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: Original contains color plates: All  
DTIC and NTIS reproductions will be in black and  
white.

DESCRIPTORS: \*Dining halls, Design to cost,  
Enlisted personnel, Marine Corps, Military  
facilities, Food service, Furniture, Military  
budgets

(U)

This guide presents coordinated interior design  
concepts and criteria for Army Food Service  
Officers and Facilities Engineers. The  
implementation of these concepts and criteria is  
illustrated with a renovation case study of a  
Marine Corps dining facility at Marine Corps  
Base, 29 palms. The design information in the  
guide is intended to improve dining facility  
environments by eliminating drabness, noise, the  
appearance of crowdedness, and lack of privacy.  
Included in this guide are: (1) Example dining  
facility modernization floor plan layouts, including  
a renovation case study at Marine Corps Base,  
29 palms. (2) Typical design packages with  
perspective renderings, color options, and  
implementation worksheets. (3) Furniture and  
accessory index with discussions, photos and specific  
listings of materials. (4) Worksheets and cost data  
with contract information. (Author)

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AD-A074 902

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27

AD-A074 890

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A074 890 9/2 5/5

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
IL

Interactive Environmental Impact Computer  
System (EICS) User Manual.

(U)

DESCRIPTIVE NOTE: Final rept.,

SEP 79 27P Baran, Robert ; Webster, R.  
D. ;  
REPT. NO. CERL-TR-N-80  
PROJ: 4A762720AB96  
TASK: 01

UNCLASSIFIED REPORT

DESCRIPTORS: \*Computer applications, \*Environmental  
impact statements, Management information systems,  
Information retrieval, Computer aided design,  
Environmental protection  
IDENTIFIERS: EICS (Environmental Impact Computer  
System), WU002, AS896, PE62720A

(U)

(U)

This report describes the Environmental Impact  
Computer System (EICS) and provides  
instructions for obtaining and using output for the  
current interactive version of the system. It is  
recommended that the instructions be used to obtain  
the most efficient use of the system. (Author)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099052

AD-A074 480 20/1 13/2

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN IL

Mitigation of Noise Impact via Operational Changes.

(U)

DESCRIPTIVE NOTE: Final rept.,  
 SEP 79 26P Rasper, Richard ;  
 REPT. NO. CERL-TR-N-76  
 PROJ: 4A762710A896

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Noise reduction, \*Army operations,  
 \*Artillery fire, Demolition, Impulse noise,  
 Military facilities, Contours, Acoustic  
 measurement, Public relations (U)  
 IDENTIFIERS: Environmental impact, WU023, AS896,  
 PE62710A (U)

This report presents three case studies which can serve as a guide for using operational changes of artillery and demolition to reduce noise impacts at Army installations. In each case study, the initial and final noise impact is documented by computer-generated equal noise contours. The operational changes which produced the reduction or shift in contours are described and their impact estimated. The case studies demonstrate, respectively: a general reduction in operations; a shift in operations away from noise sensitive areas; and a concentration of operations toward the center of the installation. The large effect night operations have on the C-weighted day and night average sound level is clearly shown by the examples. The relative importance of the larger weapons is also shown. (Author)

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AD-A074 480

UNCLASSIFIED

PAGE

28

AD-A074 467

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A074 467 13/13 5/1 6/11

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN IL

Developing Habitability Information for the Design of Office Environments.

(U)

DESCRIPTIVE NOTE: Final rept. Jun 76-Jul 77,  
 JUL 79 157P Lozar, Charles C. ; Porter,  
 Robert L. ;  
 REPT. NO. CERL-TR-E-142  
 CONTRACT: DOT-FA78NA-AP-8

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Office buildings, \*Environmental management, \*Habitability, Industrial engineering, User needs, Performance(Human), Workplace layout, Architecture, Experimental design, Army Corps of Engineers (U)

Habitability research deals with efforts to discover the impact of the environment on the behavior of the user/occupants in terms of their welfare, task performance, and satisfaction. In administrative facilities such as offices, data from users can be used to discover factors of habitability, such as privacy, space, view, noise, or image. Information about these environment factors can then be applied to interior design solutions to improve the habitability for other office occupants. The methodology of this type of field research is to: (1) analyze results from before-and-after evaluations of renovations, and (2) use the analysis to generate design guidance for the layout and design of generic workstation configurations. Interpretation of the research results yielded three kinds of applicable information: (1) understanding of office layouts and workstation evaluations for purposes of possible revision of the existing NAFEC design, (2) the possible development of generic guidance for office design relating to generalizable factors of habitability, and (3) development of quantitative methods of relating habitability factors to environmental components in terms of stimulus-response interactions.

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A074 175 5/9

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN IL

The Job Activities Description (JAD) Questionnaire: An Analysis of Time Spent on and Importance of Managerial Duties. (U)

DESCRIPTIVE NOTE: Interim rept.,  
SEP 79 47P Ellison, Robert L. ; Abe,  
Clifford ; Fox, David G. ; Veneklasen, Wayne D. ;  
REPT. NO. CERL-IR-E-157  
PROJ: 4A761102AT23  
TASK: A1

UNCLASSIFIED REPORT

DESCRIPTORS: \*Job analysis, \*Personnel management,  
Army Corps of Engineers, Manpower utilization,  
Careers, Questionnaires, Management,  
Tables(Data)  
IDENTIFIERS: PE61102A, AST23, WU007

The Job Activities Description (JAD) was administered to 394 U.S. Army Corps of Engineers employees at GS levels 11 through 16 to examine the nature of job activities for these personnel. The JAD focused on management practices that were generally characteristic of key position within the Corps. Personnel at the lower levels (GS 11 and 12) spend much more time in Use Knowledge and Skills in a Technical Capacity--those activities for which an engineer is trained. Personnel at these levels can remain specialists. Personnel at higher levels (GS 15 and 16) spread their time over all nine of the categories studied, thus assuming the role of a manager and generalist, so that engineering duties become less important. This study resulted in a better understanding of the job activities rated as being of greater importance at the managerial levels of the Corps. The analyses indicated that the selection process should concentrate on an applicant's ability to perform those duties required at the higher level--not on past demonstrated ability in activities that may not be relevant at the higher level. (U)

AD-A074 175

UNCLASSIFIED

PAGE

29

AD-A074 171

UNCLASSIFIED

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A074 171 13/2

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN IL

Development of a Pavement Condition Rating Procedure for Roads, Streets, and Parking Lots. Volume II. Distress Identification Manual. (U)

DESCRIPTIVE NOTE: Final rept.,  
JUL 79 120P Shahin, Mohamed Y. ; Kohn,  
Starr D. ;  
REPT. NO. CERL-TR-M-268-VOL-2

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: See also Volume I, AD-A074 170 and Rept. nos. AFCEC-TR-76-22 and CEEDO-TR-77-44.

DESCRIPTORS: \*Pavements, \*Roads, \*Civil engineering, Military engineering, Asphalt, Concrete, Spallation, Pavement bases, Maintenance management, Cracking(Fracturing), Army Corps of Engineers  
IDENTIFIERS: PCI(Pavement Condition Index)

Volume I describes the development and verification of a pavement condition index (PCI) for rating jointed concrete (plain and reinforced) and asphalt surfaced roads, streets, parking lots, and hardstands subjected to pneumatic tired and tracked vehicular traffic. A similar method for air fields has been developed and officially adopted by the U.S. Air Force. The PCI, which measures pavement structural integrity and surface operational condition, is calculated based on measured pavement distress types, severities, and densities obtained during pavement inspection. Volume II describes types and severity levels, and the measurement criteria to use when collecting data for the PCI calculation. Field tests indicate that the PCI closely agrees with the collective judgment (mean rating) of experienced pavement engineers. The PCI was found to be much more consistent than ratings by individual engineers since it is based on measured distress data, and not on subjective judgment. (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A074 170 13/2 5/1

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN IL

Development of a Pavement Condition Rating Procedure for Roads, Streets, and Parking Lots. Volume I. Conditions Rating Procedure.

(U)

DESCRIPTIVE NOTE: Final rept.,  
JUL 79 92P Shahin, Mohamed Y. ; Kohn,

Starr D. ;

REPT. NO. CERL-TR-M-268-VOL-1

## UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: See also Volume 2, AD-A074 171 and Rept. nos. AFCEC-TR-76-22 and CEEDO-TR-77-44.

DESCRIPTORS: \*Pavements. \*Roads. \*Maintenance management. Civil engineering. Ratings. Concrete. Construction materials. Repair. Tables(Data).  
Military engineering  
IDENTIFIERS: PCI(Pavement Condition Index),  
\*Pavement condition rating

(U)

(U)

Volume I describes the development and verification of a pavement condition index (PCI) for rating jointed concrete (plain and reinforced) and asphalt surfaced roads, streets, parking lots, and handstands subjected to pneumatic tired and tracked vehicular traffic. A similar method for air fields has been developed and officially adopted by the U.S. Air Force. The PCI, which measures pavement structural integrity and surface operational condition, is calculated based on measured pavement distress types, severities, and densities obtained during pavement inspection. Volume II describes the distress types and severity levels, and the measurement criteria to use when collecting data for the PCI calculation. Field tests indicate that the PCI closely agrees with the collective judgment (mean rating) of experienced pavement engineers. The PCI was found to be much more consistent than ratings by individual engineers since it is based on measured distress data, and not on subjective judgment.

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AD-A074 170

UNCLASSIFIED

PAGE

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AD-A074 050

UNCLASSIFIED

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A074 050 20/1

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN IL

The Blast Noise Prediction Program: User Reference Manual.

(U)

DESCRIPTIVE NOTE: Interim rept.,  
AUG 79 78P Pawlowska, V. ; Little, L. ;  
REPT. NO. CERL-IR-N-75  
PROJ: 4A762720A896  
TASK: 03

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Noise(Sound). \*Noise pollution.  
\*Computer programs. Military engineering. Manuals.  
Blast waves. Data acquisition. Environmental protection. FORTRAN  
IDENTIFIERS: \*Blast noise, AS896, PE62720A, WU001

(U)

(U)

This report provides user instructions for the U.S. Army Construction Engineering Research Laboratory's (CERL's) Blast Noise Prediction computer program, BNOISE 1.0, which is designed to predict the noise impacts of Army blast-noise operations. This report is designed to serve as a reference manual and describes the manipulation of the modules used by the Blast Noise program, provides a sample run, and gives a list of module error messages. (Author)

(U)

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A073 894 13/3 13/2

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
IL

Simplified Sanitary Landfill Design. (U)

DESCRIPTIVE NOTE: Final rept..

AUG 79 43P Gerdes, G. L.; Donahue, B.

A. ;

REPT. NO. CERL-TR-N-78

PROJ: 4A762720A896

TASK: T2

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Earth fills, \*Waste disposal,  
Simplification, Sanitation, Land use, Army  
Corps of Engineers, State of the art, Site  
selection, Waste management, Environmental  
protection

IDENTIFIERS: \*Sanitary landfills (U)

This report surveys and summarizes state-of-the-art  
practices in the design and operation of sanitary  
landfills. This information is intended to be used  
as guidelines for Facilities Engineers at Army  
installations. All aspects of sanitary landfills  
are covered, including site selection, design,  
pollution control, operation, and final closure. (U)

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A073 802 13/2 13/12

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILProbabilistic Concept for Gravity Dam  
Analysis. (U)

DESCRIPTIVE NOTE: Special rept.,

AUG 79 70P Prendergast, James D. ;

REPT. NO. CERL-SR-W-265

PROJ: 4A761101A91D

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Dams, \*Safety, Structural analysis,  
Earthquake engineering, Concrete, Reliability,  
Rock mechanics, Army Corps of Engineers,  
Seismic data, Civil engineering, Pressure  
IDENTIFIERS: Gravity Dams, AS91D,  
PE61101A (U)

This report describes a probabilistic concept for  
evaluating the safety of concrete dams against  
sliding and overturning failures in terms of the  
various sources of uncertainty underlying the design  
parameters. This concept is used to compute the  
probability of sliding and overturning failures of  
two moderately low nonoverflow gravity dams designed  
using conventional design procedures for reservoir  
water loadings, and in one instance, earthquake  
loadings. The results show that it is possible to  
quantify the safety of a dam in a probabilistic  
sense. (Author) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A073 782 6/6 19/3

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
IL

Effects of Tracked Vehicle Activity on  
Terrestrial Mammals, Birds, and Vegetation at  
Fort Knox, KY. (U)

DESCRIPTIVE NOTE: Special rept.,  
JUL 79 66P Severinghaus, W. D. ; Riggins,  
R. E. ; Goran, W. D. ;  
REPT. NO. CERL-SR-N-77

UNCLASSIFIED REPORT

DESCRIPTORS: \*Environmental impact statements,  
\*Tracked vehicles, \*Environmental tests, Mammals,  
Birds, Vegetation, Surveys, Ecology (U)

A field study was conducted at Fort Knox, KY,  
to investigate the effects of Army tracked vehicle  
training on terrestrial birds, mammals, and  
vegetation. Intensive studies were conducted at  
three sites representative of a long-term training  
area, a short-term training area, and a control area.  
This report describes the survey procedures used  
and provides preliminary indications of ecological  
differences between Army tracked vehicle training  
areas and areas representing pre-training (no  
training) conditions. (Author) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A073 667 9/2 5/3

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
IL

Economic Impact Forecast System, Version  
2.0: User's Manual. (U)

DESCRIPTIVE NOTE: Final rept.,  
JUL 79 87P Hamilton, Joseph Wayne ;  
Webster, Ronald Dwight ;  
REPT. NO. CERL-TR-N-69  
PROJ: 4A762720A896  
TASK: 01

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: See also Rept. no. CERL-TR-N-  
2, AD-A027 139.

DESCRIPTORS: \*Computer aided instruction, \*Economic  
analysis, Military planning, Information systems,  
Systems analysis, Department of Defense, Data  
bases, Time sharing, Data processing terminals,  
Computer programs (U)  
IDENTIFIERS: EIFS (Economic Impact Forecast  
System), PE62720A, AS896, WU002 (U)

The Economic Impact Forecast System (EIFS)  
is a computer system which provides information  
useful for estimating the socioeconomic impacts  
caused by new military projects and activities.  
After the initial development of EIFS, the  
U.S. Army Construction Engineering  
Research Laboratory (CERL) encouraged leading  
economists and scientists to review the model and  
provide comments and suggestions for ways to improve  
it. These suggestions were then incorporated into  
an updated version of the system. In addition,  
interaction with users identified problems associated  
with the logistics of using a truly interactive  
computer system. Coupled with the need to provide  
for some systematic update or modification of EIFS  
(free of the need for frequent revision of the user  
manual), it became clear that a more general and  
logistically oriented user's manual was necessary.  
This report provides information for obtaining and  
initially interpreting output from current and future  
versions of EIFS. (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099052

AD-A073 619 13/13 5/1

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN IL

Built-Up Roof Construction Quality Control.

(U)

DESCRIPTIVE NOTE: Final rept.,

JUL 79 43P Lindow, Edward S.; Marvin, E.

; Rosenfield, M. J.; Blair, J. ;

REPT. NO. CERL-TR-M-267

PROJ: 4A762731AT41

TASK: T7

UNCLASSIFIED REPORT

DESCRIPTORS: \*Roofs, \*Quality control, \*Quality assurance, Military facilities, Army, Army Corps of Engineers, Contract administration (U)

(U)

IDENTIFIERS: \*Built up roofs, PE62731A, ASI41, WU009

This report recommends ways to improve the performance of built-up roofing in Army facilities by advancing roof construction quality control and quality assurance. This study assessed the state of the art in roofing quality control; evaluated existing Army Corps of Engineers quality control/quality assurance requirements related to roofing; examined the Corps' current roofing practices to determine compliance with the state of the art and Corps requirements; and provided the recommendations based on assessments of current performance. (Author)

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AD-A073 619

UNCLASSIFIED

PAGE

33

AD-A073 032

UNCLASSIFIED

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A073 032 6/6

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN IL

Aquatic Rational Threshold Value (RTV) Concepts for Army Environmental Impact Assessment.

(U)

DESCRIPTIVE NOTE: Final rept.,

JUL 79 41P

Riggins, Robert E.; Smith,

Edgar D. ;

REPT. NO. CERL-TR-N-74

PROJ: 4A762720A896

TASK: A

UNCLASSIFIED REPORT

DESCRIPTORS: \*Environmental impact statements, Ecology, Models, Water quality, Predictions, Correlation techniques, Indexes, Toxicity, Pollutants, Fishes, Algae, Population, Equations (U)

(U)

IDENTIFIERS: PE62720A, AS896, WU006

This report presents the results of a study undertaken to develop practical techniques for evaluating the 'significance' of predicted water quality impacts. Issues concerning the definition and use of the term 'significant' are discussed at length. Existing aquatic ecosystem models are reviewed, potential criteria for measuring significance are examined, and a concept framework is presented. The result is a Rational Threshold Value (RTV) concept for measuring the significance of impacts on aquatic features. Initial development of an aquatic RTV involves determination of toxicity levels resulting from the introduction of pollutants into aquatic ecosystems, and expression of the effects of these toxicants on population levels of selected fish species. (Author)

(U)

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099032

AD-A073 031 13/11 11/9

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILDurability and Fire-Spread Aspects of  
Plastic Pipe Systems.

(U)

DESCRIPTIVE NOTE: Final rept.,

JUL 79 68P Smith, Alvin; Williamson, R.

Brady; CERL-TR-M-264

PROJ: A4762731AT41

TASK: T7

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Pipes, \*Plastics, \*Fire safety,  
\*Strength(General), Performance tests,  
Failure(Mechanics), Fire resistance, Test and  
evaluation, Materials laboratories, Test methods

IDENTIFIERS: \*Plastic pipes, PE62731A, AST41,

WU008 (U)

IAC ACCESSION NUMBER: PL-033104

IAC DOCUMENT TYPE: PLASTIC -HARD COPY--

This report presents the findings of the two  
studies of commercially available thermoplastic pipe  
now in widespread use for water distribution, drain-  
waste-vent (DWV), sewage, and plumbing systems.One study dealt with the long-term performance of  
plastic pipe and drew information from users'  
experience. The other study concerned accumulation  
of test data on fire spread in structures having  
plastic pipe in interior plumbing and DWV systems.  
Results of the two studies indicate that plastic  
pipe is very durable in long-term service as  
predicted by short-term tests and that while most  
plastic pipe will burn in established building fires,  
the fire spread potential is not great. Designs  
that further limit fire spread are given.  
(Author)

(U)

IAC SUBJECT TERMS: P--(U)Test methods, Durability,  
Pipe, Thermoplastics, Flammability, Failure  
mechanics, Fire tests, ABS, PVC, Buildings, ZZ  
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AD-A073 031

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PAGE

34

AD-A072 986

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A072 986 3/2

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILInvestigation of the Interrelationship between  
Direct, Diffuse, and Total Solar  
Radiation.

(U)

DESCRIPTIVE NOTE: Special rept.,

JUL 79 25P Walton, George;

REPT. NO. CERL-SR-E-155

PROJ: A4761101A910

TASK: 04

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Solar radiation, Diffusion, Solar  
heating, Experimental data, Pyranometers, Thermal  
diffusion, Algorithms, Solar energy, Data  
acquisition, Horizontal orientation  
IDENTIFIERS: PE61101A, WU058, AS91D(U)  
(U)This report describes an investigation of the  
relationship between total solar radiation on a  
horizontal surface and its direct and diffuse  
components. It is based on radiation measurements  
taken in Champaign, IL in 1978. Good agreement  
was found between the observed data and the SOLMET  
correlation, which was published after this study  
was begun. This report recommends use of the  
SOLMET correlation for solar simulation programs.  
(Author)

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SEARCH CONTROL NO. 099062

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AD-A072 273

UNCLASSIFIED

PAGE

36

AD-A072 272

UNCLASSIFIED

099062

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099052

AD-A072 054 11,5 20/11

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN IL

Fracture Characteristics of Structural Steels: Reference Manual.

DESCRIPTIVE NOTE: Final rept.,

APR 79 326P Aleszka, J.; Kim, Y.; Scott, J.; Kumar, A.;

REPT. NO. CERL-TR-M-258

PROJ: 4A761102AT23

TASK: A2

UNCLASSIFIED REPORT

DESCRIPTORS: \*Structural steel.  
\*Fracture(Mechanics). \*Microstructure.  
\*Welds. \*Tensile properties.  
Fatigue(Mechanics). Impact. Electron microscopy.  
Electronic scanners. Embrittlement. Hydrogen embrittlement. Welds. Defects(Materials)  
IDENTIFIERS: Steel A-36, Steel A-514, Steel AX-110, Steel HY-130, Steel A-588, Steel A-242, Steel 416, Steel 17-4 PH, Steel A-58, Steel A-607, A5123, PE61102A, WU002

IAC ACCESSION NUMBER: MCIC-108908

IAC DOCUMENT TYPE: MCIC -HARD COPY--

This report presents the findings of a scanning electron microscope (SEM) study of tensile, fatigue, and impact fracture characteristics of structural steels used in Army Corps of Engineers facilities and components. Steels investigated were ASTM A-36, ASTM A-514 AX-110 weld, HY-130, ASTM A-588, ASTM A-242, AISI 416, 17 4 PH, ASTM A-516, and ASTM A-607.

Specimens were tested in as-received, hydrogen-embrittled, and temper-unbrittled conditions. The failure mode of embrittled and unembrittled AX-110 welds containing induced weld defects was also studied. The information contained in this reference manual will provide a basis for comparison of fracture characteristics to determine the mode of failure in analysis of components failure. Four examples of inservice failures in which the SEM provided valuable information are also presented. (Author)

IAC SUBJECT TERMS: M--(U)A36, A514, AX-110,

AD-A072 054

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PAGE

37

AD-A072 003

UNCLASSIFIED

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A072 003 13/2

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN IL

Implementation of Resource Recovery Guidelines at Fort Meade, Fort Lewis, and Fort Sill.

DESCRIPTIVE NOTE: Final rept.,

JUL 79 114P Donahue, Bernard A.;

Kraybill, Daniel D.; Mitchell, G.; Smith, M.;

Deminco, P.;

REPT. NO. CERL-TR-N-71

PROJ: 4A762720A896

TASK: 02

UNCLASSIFIED REPORT

DESCRIPTORS: \*Waste recycling. \*Paper. \*Military facilities. Army operations. Refuse collection. Material separation. Marketing. Public relations. Maryland, Washington(State), Oklahoma. Economics. Cost analysis

IDENTIFIERS: Fort Meade, Fort Lewis, Fort Sill, Newsprint, Cardboard, PE62720A, AS896,

WU007

This report documents the activities to implement requirements of the 'Source Separation for Materials Recovery Guidelines' at Fort Meade, MD. These guidelines, one of six U.S. Environmental Protection Agency Solid Waste Management Guidelines, are primarily concerned with the source separation of high-grade paper, newspaper, and corrugated paper. The information obtained from the implementation at Fort Meade was compared with voluntary recycling programs at Fort Sill, OK, and Fort Lewis, WA. Extensive economic analysis at Fort Meade indicated that 'full' implementation of the program for cardboard at points of high generation was deemed economically feasible. The investigations at Fort Sill and Fort Lewis indicated that two key items are essential for successfully implementing voluntary resource recovery programs at installations: (1) interest in and understanding of the program by installation personnel at a meaningful level, and (2) public interest and motivation, maintained through an innovative incentive program.

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A072 002 13/2 17/1

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILTrue-Integrating Environmental Noise  
Monitor and Sound Exposure Level Meter.  
Volume II. Wiring and Parts Lists, Parts  
Layouts, and Schematics.

(U)

DESCRIPTIVE NOTE: Final rept..

JUN 79 175P Averbuch, Aaron J. ; Schomer,

Paul D. ; Weisberg, M. W. ;

REPT. NO. CERL-TR-N-41-VOL-2

PROJ: 4A762720A896

TASK: 03

## UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: See also Volume 1, AD-A060

958.

DESCRIPTORS: \*Acoustic detectors, \*Noise pollution,  
\*Monitoring, Data acquisition, Environmental  
tests, Noise (Sound), Maintenance, Wiring  
diagrams, Schematic diagrams, Parts, Printed  
circuit boards, Electronic connectors  
IDENTIFIERS: Sound level meters, PE62720A,  
AS896, WU001

(U)

(U)

This report provides the complete hardware  
construction of the CERL environmental noise  
monitor. Included are: a task block diagram of the  
unit, a parts list and diagram of the front panel, a  
parts list and diagram of the power supply circuit, a  
list of the back plane wiring, parts list, layout,  
and schematics of the PC boards, and wiring list  
for cables and connectors. (Author)

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AD-A072 002

UNCLASSIFIED

PAGE

38

AD-A072 001

UNCLASSIFIED

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A072 001 5/2 9/2

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILEngineer Unit Days Computer Program  
(UNDAY) - User's Manual.

(U)

DESCRIPTIVE NOTE: Final rept..

JUL 79 75P Kim, Seung Jai ; Nelson, R. ;

Kao, Anthony M. ;

REPT. NO. CERL-TM-M-266

PROJ: 4A763734DT34

TASK: 04

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Instruction manuals, User needs,  
Computer programs, Scheduling, Construction,  
Theater level operations, Manpower utilization,  
Data processing

(U)

IDENTIFIERS: UNDAY (Engineer Unit Days Computer  
Program), AFCS (Army Facilities Components  
System), PE63734A, AST34, WU004

(U)

This report describes the Engineer Unit Days  
Computer Program (UNDAY) and provides the user  
with information to operate the program. UNDAY was  
developed to facilitate rapid scheduling of military  
construction projects using the Army Facilities  
Components System (AFCS) in the theater of  
operations. The program selects the engineer  
construction unit or combination of units that most  
efficiently meets the resource requirements of a  
given project and calculates the number of work days  
it requires to complete the facilities. (Author)

(U)

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A071 637 6, 3 11/12 5/1

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILDevelopment of Guidelines for the Army Timber  
Harvesting Program.

(U)

DESCRIPTIVE NOTE: Final rept.,  
MAY 79 170p Moore, A. W.; Parsons, Guy  
A.; Ramsson, R. E.;  
REPT. NO. CERL-TR-P-102

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Trees, \*Lumber, \*Army planning,  
\*Management planning and control, Wood, Natural  
resources, Land use, Army Corps of Engineers,  
Efficiency  
IDENTIFIERS: \*Army Timber Harvesting  
Program

This report presents (1) guidelines for the Army  
Timber Harvesting Program's timber harvesting  
activities; (2) a suggested contract format to  
promote uniformity of timber harvesting contracts  
throughout the Army; and (3) an examination of  
timber harvesting activities and their relation to  
timber management functions to determine  
recommendations for improvements in the Army's  
timber harvesting service. (Author)

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AD-A071 637

UNCLASSIFIED

PAGE

39

AD-A071 623

UNCLASSIFIED

099062

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A071 623 13/13 5/1

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
IL

Construction Contract Risk Assignment.

(U)

DESCRIPTIVE NOTE: Final rept.,  
JUN 79 70p Erikson, Carl A.; O'Connor,  
Michael J.;  
REPT. NO. CERL-TR-P101  
PROJ: 4A161102AT23  
TASK: A2

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Construction, \*Contract  
administration, Risk, Cost overruns, Cost models,  
Litigation, Cost estimates, Penalties,  
Government procurement, Contracts, Insurance  
IDENTIFIERS: WU005, PE61102A

(U)  
(U)

This report presents the results of an  
investigation to determine the cost effects of  
varying the assignment of risk between the owner and  
contractor in firm fixed-price construction contracts.  
Among the topics included are a working definition  
of risk, a risk classification upon which a  
construction process risk model is based, a  
discussion of techniques for contractually assigning  
risk, a discussion of the applicability of utility  
theory for analyzing the assignment of risk in  
construction, an example which models the cost  
effects of varying the assignment of risks, and  
implementation considerations. (Author)

(U)



## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A069 977 8/8 6/6 5/2

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILBasic Analytical Model for Environmental  
Impact Assessment of Surface Water  
Resources--DOSAG User Manual.

(U)

DESCRIPTIVE NOTE: Final rept.,

MAY 79 41P Riggins, Robert E. ;

Kothandaraman, V. ; Goettel, Bruce C. ;

REPT. NO. CERL-TR-N-64

PROJ: 4A762720A896

TASK: 01

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Surface waters, \*Environmental  
protection, \*Manuals, Computerized simulation,  
Water quality, Water pollution, Hydraulic models,  
Streams, Army operations

(U)

IDENTIFIERS: EICS(Environmental Impact Computer  
System), WU006, AS896, PE62720A

(U)

This report discusses and provides user instructions for a computerized water quality model that will help satisfy the Army environmental planner's need for quantitative information on dissolved oxygen resources in a stream caused by new Army projects or activities. The information provided by output from this model will be useful for providing data for impacts on the dissolved oxygen content of a stream for a single-reach, single-point-source pollutant inflow situation with steady-flow conditions. Three subprograms within the model are used to calculate the impact of carbonaceous and nitrogenous waste discharges on the oxygen resources in a receiving water body, the ultimate biological oxygen demand and deoxygenation coefficients for both carbonaceous and nitrogenous waste discharges, and annual variations in temperature of a water body.

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(Author)

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A069 878 13/13

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILInflation/Foam/Shotcrete System for Rapid  
Construction of Circular Arches.

(U)

DESCRIPTIVE NOTE: Special rept.,

MAY 79 67P Woratzeck, M. ;

REPT. NO. CERL-SR-M-262

PROJ: 4A162719AT41

TASK: T8

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Inflatable structures, \*Shelters,  
Polyurethane resins, Military facilities, Foam,  
Arches, Construction, Concrete

(U)

IDENTIFIERS: IFS(Inflation/Foam/Shotcrete),  
Arch-Shaped structures, AST41, WU001,

(U)

PE62719A

IAC ACCESSION NUMBER: PL-032787

IAC DOCUMENT TYPE: PLASTIC -MICROFICHE--

This study analyzed, designed, and fabricated a semicircular arch structure 32 ft (9.8 m) long by 13 ft (4 m) high using the inflation/foam/shotcrete (IFS) system. Equipment cost, man-hours, skill levels, and time required for construction were monitored. The test results indicate that the IFS system can be used to construct arch-shaped structures. Skills required to operate the foam and shotcrete equipment are consistent with those available in the Army. The structural failure of the urethane foam arch indicated that creep is a significant factor in the behavior of the polyurethane foam arch and can cause instability and collapse. (Author)

(U)

IAC SUBJECT TERMS:

P--(U)Testing, Design analysis,  
Fabrication, Inflatable structures, Military  
applications, Concrete, Shelters, Production costs,  
Cost tracking, Urethanes, Mechanical properties,  
Spray application, Stress analysis, ZZ Unlimited.;

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A069 841 13/2 13/13 5/9

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
IL1978 Directory of Experts on Organization and  
Management of Construction.

MAY 79 128P

UNCLASSIFIED REPORT

DESCRIPTORS: \*Construction, Specialists,  
Biographies (U)

This directory identifies 73 experts located in 20 countries. The biographic information on each expert includes his major areas of research interests in priority order, a description of his professional experience, his publications and honors.

(Author)

(U)

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A069 586 13/13 5/1

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILBlocks to Effective Technology Transfer in  
Construction.

DESCRIPTIVE NOTE: Special rept.,

DEC 78 21P Ryan, T. C. ;

REPT. NO. CERL-SR-O-2

UNCLASSIFIED REPORT

DESCRIPTORS: \*Construction, \*Technology transfer,  
\*Management planning and control, Management  
information systems, Computer programs, Problem  
solving, Army Corps of Engineers (U)

This report documents the findings of an investigation of the difficulties of implementing research results affecting management techniques in construction. Several civilian and military organizations dealing with construction were contacted and studied. The initial approach was to attempt actual implementation with 'off the shelf' management tools, studying the problems of technology transfer as they occurred. The approach was changed to a 'case study' in which the problems of implementation were observed. Results show that the technology transfer process is severely impeded by problems of a behavioral nature and hinges critically on the interaction of personalities along the transfer chain. This report documents the blocks to effective transfer, which include lack of effective communication, lack of an innovative environment, and the resistance of personnel to change. Suggested ways to reduce the effects of these blocks are offered. (Author)

(U)



## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099032

AD-A069 374 13/2 13/1 21/2

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY); CHAMPAIGN IL

Evaluation of Alternatives for Restoring the South Boiler House at Joliet AAP to High-Sulfur-Coal Burning Capability.

(U)

DESCRIPTIVE NOTE: Final rept..

MAY 79 43P Donahue, Bernard A. ;

Hathaway, S. A. ; Schanche, G. ; Struss, S. ;

REPT. NO. CERL-TR-N-66

UNCLASSIFIED REPORT

DESCRIPTORS: \*Boilers, \*Coal, \*Sulfur, \*Air pollution control equipment, \*Pollution abatement, Munitions industry, Industrial plants, Desulfurization, Flue gases, Particulates, Scrubbers, Cost effectiveness, Waste disposal, Air pollution

(U)

(U)

IDENTIFIERS: Joliet Army Ammunition Plant

This report evaluates alternatives for restoring the south boiler house at the Joliet Army Ammunition Plant to burn high-sulfur coal in an environmentally acceptable manner. The boiler house was examined to assess its coal handling and burning capability. Various flue-gas cleaning devices were then field evaluated to determine their potential application at the Joliet plant for particulate removal and for flue-gas desulfurization. (Author) (U)

AD-A069 374

UNCLASSIFIED

PAGE

43

AD-A069 324

UNCLASSIFIED

099062

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A069 324 9/2 5/1

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN IL

The Baseline Information System--User's Manual.

(U)

DESCRIPTIVE NOTE: Final rept.,

APR 79 22P Griffin, G. A. ; Webster, R. D. ;

REPT. NO. CERL-TR-N-72

PROJ: 4A762720AB96

TASK: 01

UNCLASSIFIED REPORT

DESCRIPTORS: \*Environmental impact statements, \*Information systems, Computer files, Data bases, Manuals

(U)

IDENTIFIERS: \*BLIS(Baseline Information System), EILS(Environmental Technical Information System), EICS(Environmental Impact Computer System), Interactive systems, PE62720A, AS896, WU002

(U)

The Baseline Information System (BLIS) is an extension of the Environmental Impact Computer System (EICS) and a subsystem of the Environmental Technical Information System (ETIS). BLIS was developed to provide EICS users with site-specific data or to identify for EICS users possible sources of such data. This BLIS data base was developed by: Aggregating EICS attribute identifications with common technological bases into search terms; Compiling and analyzing directories of regional experts and conservationists, universities, and existing data management systems; Developing a data file which identifies the aggregate keyword designation, the EICS attributes pertaining to the keyword, points of contact and appropriate geographic/political references; Developing a user-oriented software package for inclusion into ETIS. This report provides BLIS user instructions and serves as a guide for the retrieval and use of appropriate points of contact or consultation for environmental baseline data. (Author) (U)

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099052

AD-A069 097 8/2 14/5

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILGraphic Materials to Support Biophysical  
Quantitative Environmental Impact Analysis--  
Sources of Existing Materials.

(U)

DESCRIPTIVE NOTE: Final rept.,

MAR 79 82P Goran, W. D. ; Riggins, R.

E. ;

REPT. NO. CERL-TR-N-68

PROJ: 4A762720A896

TASK: 01

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Topographic maps. \*Hydrographic  
surveying. Environmental tests. Military facilities,  
Biophysics. Quantitative analysis. Land use,  
Graphics. Soil surveys. Terrain models. Aerial  
photography. Army Corps of Engineers  
IDENTIFIERS: \*Photographic tests, \*E62720A,  
AS896. WU006

(U)

(U)

This report identifies and describes resource  
materials (maps and imagery) currently available for  
environmental impact analysis on U.S. Army  
military installations. Only materials that relate  
to the biophysical and land use elements of the  
environment are considered. The report describes  
procedures for obtaining these materials and lists  
specific materials relevant to major U.S. Army  
military installations. This report also provides  
some tables, formulas, and procedures for  
quantitatively analyzing these graphical  
representations of environmental information.  
(Author)

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AD-A069 097

UNCLASSIFIED

PAGE

44

AD-A068 746

UNCLASSIFIED

099062

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A068 746 15/5 5/2 6/6

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILComputer-Aided Environmental Impact  
Analysis for Army Real Estate Actions:  
User Manual.

(U)

DESCRIPTIVE NOTE: Final rept.,

APR 79 82P Fittipaldi, John J. ; Thomas,

S. E. ; Novak, E. W. ;

REPT. NO. CERL-TR-N-70

PROJ: 4A762720A896

TASK: 01

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Military facilities, \*Manuals,  
\*Environmental protection, Computer aided diagnosis,  
User needs, Military engineering, Construction,  
Land use, Army planning, Environmental impact  
statements  
IDENTIFIERS: \*EICS(Environmental Impact Computer  
System). Real estate. WU001, AS896, PE62720A

(U)

(U)

The Federal government has mandated that its  
agencies incorporate environmental considerations  
into the planning of new projects, activities, and  
decisions. Environmental Impact Assessments and  
Statements (EIAs/EISs) provide a basis for  
review and analysis of any proposed action's  
environmental consequences. The Environmental  
Impact Computer System (EICS), developed by  
the U.S. Army Construction Engineering  
Research Laboratory, helps planners and decision-  
makers efficiently identify primary and secondary  
impacts of their proposed projects or activities and  
suggests ways to mitigate these impacts. This  
report discusses the philosophy behind the  
environmental impact assessment process; defines the  
EICS components; discusses the criteria and general  
approach for using the EICS; provides detailed  
instructions for assessing the Real Estate  
Functional Area; and provides detailed procedures  
necessary to use the EICS output in the  
environmental impact assessment process and in  
preparing a formal EIA/EIS. The EICS will save  
its users time and money by eliminating unnecessary  
library and field research. It is recommended that

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A068 360 5/1

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILL

Analysis of Real Property Inventory  
Reporting Procedures.

DESCRIPTIVE NOTE: Final rept.,

S. ; APR 79 165P Altheide, C. P. ; Ganus, S.

REPT. NO. CERL-TR-P-100

UNCLASSIFIED REPORT

DESCRIPTORS: \*Inventory, \*Reports, Information  
systems, Information processing, Military  
facilities, Army, Data processing, Tables(Data),  
Costs  
IDENTIFIERS: \*Real property, \*Real estate, Civil  
Works

This report presents the results of an analysis of  
three systems for real property inventory (RPI)  
reporting: Civil Works, military installations  
not using the Integrated Facilities System  
(IFS), and military installations using IFS.  
Included are details of the existing procedures; a  
description of the information flows between military  
installations or U.S. Army Corps of  
Engineers Districts and the Office of the  
Chief of Engineers, Directorate of Real  
Estate (DAEN-RE); analysis of affected reports;  
and system analyses. Recommendations for  
streamlining these procedures to improve the  
timeliness of information, reduce manual effort,  
increase accuracy of reporting, and eliminate  
redundant or unnecessary data reporting are given for  
the systems both individually and collectively.  
(Author)

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AD-A068 360

UNCLASSIFIED

PAGE

45

AD-A068 295

UNCLASSIFIED

099062

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A068 295 14/2 8/11

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILL

Development and Use of Seismic Shock Test  
Criteria for Essential Equipment in Critical  
Facilities.

(U)

DESCRIPTIVE NOTE: Final rept.,

APR 79 99P Sonnenburg, P. N. ;

Prendergast, J. D. ;

REPT. NO. CERL-TR-M-236

PROJ: 4A762731AT41

TASK: 04

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: Report on Earthquake Design  
Criteria for Interior Utility and Lifeline  
Systems.

DESCRIPTORS: \*Test methods, \*Seismic waves,  
Commercial equipment, Simulation, Waveforms,  
Shock tests, Facilities  
IDENTIFIERS: \*SG/TSE (Safeguard/Tactical  
Support Equipment), \*Essential equipment,  
\*Critical facilities, \*Seismic qualification  
testing, PE62731A, A5T41, WU002

(U)

(U)

This report provides procedures for establishing  
seismic qualification test criteria for essential  
equipment in critical facilities and presents  
guidance for interpretation of the test results.  
Since equipment representative of that used in the  
essential systems of critical facilities was observed  
to be closely related to many items of tactical  
support equipment used at missile sites, existing  
data from proof and fragility tests on tactical  
support equipment were reviewed to analyze failure  
characteristics. The failure data were organized so  
they could be statistically analyzed to provide  
estimates of the probability of failure. The major  
tasks in the seismic test qualification of equipment  
are summarized; these tasks include test criteria  
formulation, test facility selection, test unit  
formulation, establishment of test qualification  
requirements, and interpretation of test results.  
Test criteria were developed by: (1) test axis  
selection, (2) statement of operating configuration,  
(3) definition of expected failure modes, and (4)

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## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A068 025 10/1 8/7 15/5

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLProject Development Guidelines for Converting  
Army Installations to Coal Use.

(U)

DESCRIPTIVE NOTE: Interim rept.,

MAR 79 41P Hathaway, S. A. ; Tseng, M. ;

Lin, J. S. ;

REPT. NO. CERL-IR-E-148

PROJ: 4A762731AT41

TASK: 06

UNCLASSIFIED REPORT

DESCRIPTORS: \*Energy conversion, \*Coal, \*Military  
facilities, Army planning, National energy crisis,  
Fuel consumption, Electric power, Cost analysis,  
Heating, Army Corps of Engineers

(U)

IDENTIFIERS: WU016, AST41, PE62731A

(U)

IAC ACCESSION NUMBER: PL-901288

IAC DOCUMENT TYPE: PLASTIC -HARD COPY--

This report provides technical and economic  
information to help Army facilities andDistrict Engineers develop projects for  
converting installation heating and power systems to  
using coal as a primary fuel. The report includes a  
general overview of the coal conversion and supply  
problem; coal delivery, handling, and storage; boiler  
conversion; boiler replacement; salvage fuels; coal  
gasification; and air pollution control. (Author-  
PL).

(U)

IAC SUBJECT TERMS: P--(U)Equipment, Military  
applications, Guides, Coal, Handling, Gasification,  
Energy conversion, Combustors, Emission control,  
RDF, Bibliographies, Design, Cost analysis,  
Cyclone combustors, Petroleum, ZZ MTDE, ZZ  
Unlimited.

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A068 024 13/13

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLThe Role of Habitability Information in  
Post-occupancy Evaluation.

(U)

DESCRIPTIVE NOTE: Interim rept.,

MAR 79 47P Veneklasen, W. D. ;

REPT. NO. CERL-IR-E-146

PROJ: 4A762731AT41

TASK: T3

UNCLASSIFIED REPORT

DESCRIPTORS: \*Habitability, \*Military facilities,  
\*Inspection, Test and evaluation, Data  
acquisition, Buildings, Questionnaires,  
Interviewing, Quality assurance, Army,  
Construction

(U)

IDENTIFIERS: WU010, AST41, PE62731A

(U)

This report investigates the data-gathering phase of post-construction evaluations of military facilities. The principal objective was to develop a procedure to identify physical components of a constructed environment which affect occupants using the facility. Field installation master planners and inspectors were interviewed to find out what evaluation procedures are being used and to find out when the post-completion inspections were conducted. Then a questionnaire for facility occupants was developed, using a set of 13 predetermined occupant behavior factors; the questions dealt with the facility's physical components. This procedure tested the applicability and validity of the current post construction/completion evaluation methods as habitability evaluation measures. It has been concluded that the behavior factors were useful for (1) showing the importance of various environmental factors to the individual occupant, and (2) evaluating the appropriateness of a specific setting to individuals and organizations. Continued refinement of the data collection techniques will contribute to a data file on facility types.

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AD-A068 025

UNCLASSIFIED

PAGE

46

AD-A068 024

UNCLASSIFIED

099062

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A067 985 13/2 13/6 15/5

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLIn-Handstand Tactical Vehicle Maintenance  
Facilities--Concept Design and Preliminary  
Recommendations for Wastewater Treatment.

(U)

DESCRIPTIVE NOTE: Interim rept.,  
MAR 79 31P Fileccia, Robert ;Benson, J. ;  
Matherly, J. ;REPT. NO. CERL-IR-N-67  
PROJ: 4A762720A896

TASK: 02

## UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: Report on Oil Pollution Control  
at Military Installations.

DESCRIPTORS: \*Waste treatment, \*Vehicles.

\*Military facilities, Maintenance management, Oil  
pollution, Waste disposal, Army equipment, Waste  
water, Environmental protection

(U)

IDENTIFIERS: \*Motor pools, Waste oil, WU009,  
AS896, PEG2720A

(U)

Maintenance performed on Army tactical equipment  
-- defined in terms of oil changing and vehicle  
cleaning -- was reviewed and several alternative  
plans for controlling waste discharge from Army  
motor pool vehicle washing and cleaning were  
considered. (1) Pretreatment of waste discharges  
from existing washracks and motor pool shop drains  
with effluent discharge to sanitary sewers. (2)  
Provision of a separate, industrial waste-  
collection system with centralized treatment of  
collected wastewater. (3) Replacement of the  
existing washrack system with one or two consolidated  
tactical vehicle wash facilities that have  
centralized wastewater treatment for discharge or  
recycle. Alternative 3 was selected as having the  
most potential for providing an efficient means to  
regulate effluent discharge. Based on this  
consideration, concept designs for in-handstand  
maintenance facilities were developed. In addition,  
preliminary recommendations for the design of  
wastewater pretreatment units were developed, under  
the assumed condition that gravity separation alone  
would be sufficient to regulate effluent discharge t(U)

AD-A067 985

UNCLASSIFIED

PAGE

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A067 829 21/4 13/2 7/4

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLThermogravimetric Analysis of Solid Refuse--  
Derived Fuels and Coal.

(U)

DESCRIPTIVE NOTE: Technical rept.,  
MAR 79 28P Hathaway, S. A. ;Lin, J.

S. ;

REPT. NO. CERL-TR-E-149

PROJ: 4A761102AT23

TASK: A2

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Fuels, \*Solid wastes,

\*Thermogravimetric analysis, Coal, Energy  
conservation, Ignition, Combustion, Burning rate,  
Efficiency, Temperature, Savings

(U)

IDENTIFIERS: \*Densified refuse derived fuels,

(U)

WU011, ASI23, PEG1102A

IAC ACCESSION NUMBER: PL-901329

IAC DOCUMENT TYPE: PLASTIC -HARD COPY--

The ignition and combustion rates of three types of  
densified refuse-derived fuel (DRDF) and low-  
volatile Illinois bituminous coal were investigated  
at temperatures ranging from 600 C to 1000 C and  
residence times ranging up to 120 sec. It was found  
that DRDF ignition time is up to 12 times less than  
that of coal, that the temperature required for coal  
ignition at a given residence time is greater than  
that needed for DRDF ignition, and that the  
DRDF:coal time to ignition ratio is expressible as  
a linear function of furnace temperature. It was  
also found that DRDF produced from mixed municipal-  
residential solid waste has a slower combustion rate  
than that produced from homogeneous heavy paper  
stock, and that the combustion rates of all types of  
DRDF are significantly greater than that of the  
coal tested at a 99.9 percent level of confidence.  
(Author)

(U)

IAC SUBJECT TERMS: P--(U)Cellulose, Solid wastes,  
Municipal wastes, TGA, RDF, Combustion rates,  
Coal, Mixed RDF, Blends, Densification, Burning  
rates, ZZ MTDE, ZZ Unlimited.;

AD-A067 829

UNCLASSIFIED

47

099062

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A067 719

13/2

9/2

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILL

Computer-Aided Engineering and Architectural  
Design System (CAEADS). Volume II.  
Concise Review.

(U)

DESCRIPTIVE NOTE: Final rept.,

JAN 79 128P Daniel.; Mann.; Johnson.;  
Mendenhall.;

REPT. NO. CERL-TR-P-97-VOL-2

CONTRACT: DACA87-77-C-0009

PROJ: 4A762731A741

TASK: T1

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: See also Volume 1, AD-A065  
827.

DESCRIPTORS: \*Civil engineering, \*Computer aided  
design, Architecture, Army Corps of Engineers,  
Integrated systems, Automation, Construction,  
Computer programs, Research facilities, Systems  
analysis

(U)

IDENTIFIERS: \*CAEADS(Computer-Aided Engineering  
and Architectural Design System), WU020,  
A5741, PE62731A

(U)

The Computer-Aided Engineering and  
Architectural Design System (CAEADS) is being  
developed for the U.S. Army Corps of  
Engineers by the Construction Engineering  
Research Laboratory (CERL) in Champaign,  
Illinois. CAEADS will be an integrated system of  
computer aids to the design process for military  
construction, supporting the design and review  
activities of Corps District Offices and the  
design activities of private Architect/Engineer  
firms under contract to the Corps. This report  
presents a concise review of the work accomplished to  
further develop the CAEADS concept and to prepare  
system documents as required by AR 18-1. This  
concise review covers the purpose, guidelines, and  
scope of the study, and the scope and background of  
CAEADS. It reviews the MC process as it  
currently exists, discusses CAEADS requirements,  
system concepts, the CAEADS Economic Analysis,  
the proposed Project Master Plan, and a

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AD-A067 719

UNCLASSIFIED

PAGE

48

AD-A067 708

UNCLASSIFIED

099062

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A067 708

11/3

13/2

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILL

Preliminary Selection of Compatible Solvents  
for Vinyl Paints.

(U)

DESCRIPTIVE NOTE: Special rept.,

MAR 79 36P Beitelman, Alfred ;Lampo,  
Richard ;

REPT. NO. CERL-SR-M-261

UNCLASSIFIED REPORT

DESCRIPTORS: \*Plastic paints, \*Organic solvents,  
\*Pollution abatement, \*Formulations, Protective  
coatings, Steel, Inland waterways, Underwater  
structures, Air pollution, Ketones, Toluenes,  
Vinyl plastics, Compatibility

(U)

IDENTIFIERS: LPN-CWIS-31205

(U)

The Corps of Engineers uses two types of vinyl  
coatings extensively to protect immersed steel in  
inland waterways: one meets restrictive air pollution  
regulations and the other uses a vinyl zinc primer to  
extend coating life. This study examined alternate  
solvent systems which would meet the requirements of  
the air pollution regulations and would be compatible  
with the vinyl zinc primer. A solvent combination  
of methyl propyl ketone (MPK), methyl amyl ketone  
(MAK), and toluene in a vinyl formulation was used.  
The viscosity, water permeability, tensile  
strength, and retained solvents of this new  
formulation were compared with existing vinyl  
formulations. It was concluded that although the  
new formulation has properties very similar to the  
existing formulations, the MAK must be stabilized  
for the coating to have an acceptable shelf life.

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(Author)

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A067 697

13/3

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILL

Sanitary Landfill Compactor Evaluation. (U)

DESCRIPTIVE NOTE: Final rept.,

MAR 79 24P Kraybill, Dan ; Donahue,

Bernard ;

REPT. NO. CERL-TR-N-62

PROJ: 4A762720A896

TASK: T2

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Earth fills, \*Compactors, \*Earth handling equipment. Bulldozers, Tracked vehicles, Test and evaluation, Land use, Comparison, Performance(Engineering), Cost analysis, Maintenance, Selection (U)

IDENTIFIERS: Sanitary landfills, WU007, AS896, PEG2720A (U)

This research has (1) determined the relative advantages and disadvantages of specialized landfill compactors, (2) examined some of the various types and brands of compactors available, and (3) provided criteria useful for the selecting sanitary landfill compactors. Three major types of compaction equipment were studied: tracked vehicles, rubber-wheeled vehicles, and steel-wheeled vehicles. It has been found that each type has specific advantages and disadvantages when applied to a sanitary landfill. Various studies on compacting machinery considered in this report have produced varying results. Research available now indicates that specialized compaction equipment is better than tracked vehicles; however, these compactors usually require an extensive amount of support equipment. Selection of compaction equipment for a military facility will be site-specific, but will depend mostly on the equipment's economic feasibility and the size of the landfill. (Author)

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AD-A067 697

UNCLASSIFIED

PAGE

49

AD-A067 691

UNCLASSIFIED

099062

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A067 691

13/2

5/3

9/2

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILL

Systems Approach to Life-Cycle Design of Pavements. Volume II. LIFE2 System Documentation. (U)

DESCRIPTIVE NOTE: Final rept.,

JAN 79 458P Lindow, Edward S. ;

REPT. NO. CERL-TR-M-253-VOL-2

PROJ: 4A763734DT08

TASK: 01

## UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: See also Volume 3, AD-A064 698.

DESCRIPTORS: \*Pavements, \*Life cycle costs, \*Systems approach, \*Computer programs, Maintenance management, Runways, Civil engineering, Flow charting, Construction, Army Corps of Engineers, Roads, Subroutines (U)

IDENTIFIERS: LIFE2 Automated System, WU001, ASI08, PE63734A (U)

This report is the second of a three volume final report which documents an automated system, LIFE2, for analyzing pavement designs and maintenance and repair strategies based on life-cycle costs. LIFE2 models existing Corps of Engineers criteria for designing both rigid and flexible pavements for airfields, roads, and streets. The program also includes analytical procedures for evaluating earthwork, drainage, and frost protection requirements in addition to maintenance costs. The resulting combinations of design schemes and maintenance strategies are ranked by total cost over the design life of the pavement. Volume I is the LIFE2 User Manual, Volume II is the LIFE2 System Documentation, and Volume III is the LIFE2 Program Listing. (Author)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099052

AD-A067 253 13/2 6/6

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILL

Water Quality Data for Army Military  
Installations.

(U)

DESCRIPTIVE NOTE: Final rept.,

FEB 79 148P Goran, W. D. ; Riggins, R.

E. ;

REPT. NO. CERL-TR-N-63

PROJ: 4A762720A896

TASK: 01

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: Original contains color plates: All  
DDC reproductions will be in black and white.

DESCRIPTORS: \*Water quality. \*Models. \*Army  
planning. \*Information systems. \*Decision making.  
\*Environmental impact statements. \*Measurement,  
Standards. \*Information retrieval. \*Sampling.  
\*Tables (Data)

(U)

IDENTIFIERS: STOREI (Storage and Retrieval of  
Water Quality Data), NAWEX (National Water  
Data Exchange), WATSTORE (Water Data Storage  
and Retrieval Systems), WU006, ASR96,  
PE62720A

(U)

Water quality models are being developed to assist  
planners and decision-makers at Army military  
installations to perform environmental impact  
analysis. Successful application of models depends  
on the existence and availability of water quality  
data. This report identifies major sources of water  
quality data and describes the location of sampling  
stations at or near selected Army military  
installations. The parameters measured are  
described and the dates and methods of measurement  
are provided. (Author)

(U)

AD-A067 253

UNCLASSIFIED

PAGE

50

AD-A067 203

UNCLASSIFIED

099062

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A067 203 9/2

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILL

The Automated Documentation System--User  
Manual.

(U)

DESCRIPTIVE NOTE: Final rept.,

FEB 79 87P Lawrie, Linda ;

REPT. NO. CERL-TR-E-147

PROJ: 4A762725AT:1

TASK: 02

UNCLASSIFIED REPORT

DESCRIPTORS: \*Computer program documentation,  
Programming manuals. \*Computer programs. \*Fortran,  
Flow charting. \*Subroutines. \*Compilers. \*Computer  
files

(U)

IDENTIFIERS: PE62725A, A T11

(U)

The Automated Documentation System (ADS) is  
a computer program and user printed designed to  
facilitate management of the development of software  
and the production of final documentation of FORTRAN  
programs. The ADS system can be used in two  
ways. (1) At any point during development of the  
software, the status of the development process can  
be determined by activation of the program to the  
source code under development. Flow charts and  
internal documentation are summarized for the program  
manager. (2) After the software is complete,  
external documentation can be produced from the  
internal documentation and compilation maps by  
running the ADS program. The ADS program is  
written in Control Data Corporation (CDC)  
FORTRAN extended, version 4.6 and can be used on  
CDC 6000/7000 series computers with few or no  
modifications. This report provides detailed user  
instructions for ADS. (Author)

(U)



## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A066 699 13/1

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLThe Performance of an Experimental Solar  
Heating System.

(U)

DESCRIPTIVE NOTE: Interim rept.,  
FEB 79 26P Juncich, D. M.; Leverenz, D.

J.; Johnson, D. L.;

REPT. NO. CERL-IR-e-144

PROJ: 4A762731AT41

TASK: TG

UNCLASSIFIED REPORT

DESCRIPTION: \*Solar heating.

\*Performance (Engineering). Solar energy. Energy  
conversion. Heat transfer. Experimental design.  
Test facilities. Collecting methods. Army Corps  
of Engineers. Residential section.  
Housing (Dwellings)

IDENTIFIERS: PE62731A, WU021, ASI41

(U)  
(U)

This report describes the performance of a residential-scale, completely instrumented solar heating system located at the U.S. Army Construction Engineering Research Laboratory (CERL), Champaign, IL. The investigation was made between January 1977 and April 1978. In addition, a daily profile of the performance of the system and its components is presented for a representative sunny winter day. An analysis of the solar system operation indicated that the collector array is by far the most inefficient component in the system for converting incident solar energy into useful heat. The solar system consists of 20 sq m (220 sq ft) of flat-plate, selective surface, singly glazed solar collectors and a 7.6 cu m (2000 gal) equivalent hot water storage tank. The storage system supplies hot water for heating a 50 sq m (540 sq ft) building used by CERL as office space. There is no domestic hot water in the building. Auxiliary energy is supplied by an electric, flow-through hot water heater. The results of this research are presented in terms of mean daily averages for each month during the heating season and include instantaneous solar radiation (horizontal and in the plane of the collector), useful heat acquired (U)

AD-A066 699

UNCLASSIFIED

PAGE

51

AD-A066 513

UNCLASSIFIED

099062

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A066 513 10/2 15/5

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLFixed Facilities Energy Consumption  
Investigation -- Data Analysis.

(U)

DESCRIPTIVE NOTE: Interim rept.,

FEB 79 46P Slivinski, B. J.; Leverenz,

D.; Windigland, L.; Mech, A. R.;

REPT. NO. CERL-IR-E-143

PROJ: 4A762731AT41

TASK: 06

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: Errata sheet inserted.

DESCRIPTORS: \*Energy consumption, \*Military  
facilities, Maintenance management, Air conditioning  
equipment, Data acquisition, Heating, Energy  
conservation, Statistical analysis, Efficiency,  
Savings, Army Corps of Engineers

IDENTIFIERS: WU007, ASI41, PE62731A

(U)  
(U)

This report describes the analysis of energy consumption data collected between September 1976 and February 1978 for selected Army buildings at Fort Belvoir, VA, Fort Carson, CO, and Fort Hood, TX. These buildings represent seven major energy consumer groups found on Army installations: family housing, troop housing, administration/training, production/maintenance, medical/dental, storage, and community support facilities. Results of analyses of building energy consumption vs. building floor area and weather parameters are presented in Btu/sq ft/heating degree days (HDD) and kWh/sq ft/cooling degree days (CDD) for each consumer group. Comparisons between consumer groups are shown graphically on bar charts; energy use data for each consumer group are used to develop charts showing installation energy use by consumer groups. (Author)

(U)

## UNCLASSIFIED

CDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 039032

AD-A066 384 15/5 13/13

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLConstruction Contract Type Selection  
Procedures. (U)

DESCRIPTIVE NOTE: Final rept..

FEB 79 75p Benson, Lee B. ; Colwell,

Glenn E.;

REPT. NO. CERL-TR-P-98

UNCLASSIFIED REPORT

DESCRIPTORS: \*Contract administration, \*Army procurement, \*Construction, Selection, Vendors, Flow charting, Price index, Specifications, Military requirements, Decision making, Contract proposals, Lead time, Management planning and control

This report presents the results of research to produce guidance for contract type selection for construction procurement actions. A flow diagram and coordinated text are used to explain the various contracting methods available, describe the situations where each method could be appropriate, and indicate the advantages/disadvantages of each. (Author)

(U)

## UNCLASSIFIED

CDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A066 223 20/1 19/4 19/6

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLAcoustic Directivity Patterns for Army  
Weapons. (U)

DESCRIPTIVE NOTE: Interim rept..

JAN 79 125p Schomen, P. D. ; Little, L.

M. ; Hunt, A. B. ;

REPT. NO. CERL-IR-N-60

PROJ: 4A762720A896

TASK: 03

UNCLASSIFIED REPORT

DESCRIPTORS: \*Noise(Sound), Blast waves, Artillery fire, Acoustic emissions, Sound pressure, Patterns, Demolition, Howitzers, Muzzle brakes, Acoustic absorption, Patterns, Contours

(U)

IDENTIFIERS: Acoustic directivity, PE62720A, WU001

(U)

(U)

This report describes tests conducted by this investigation on 12 types of Army heavy weapons at Fort Sill, OK, and the development of precise sound-pressure level contours (directivity patterns) for Army weapons currently in use. The data obtained during these tests was also used to compile tables relating the charge weight to an equivalent weight of C-4 plastic explosive. In addition, this investigation determines that elevation has little influence on weapon directivity patterns; the major factor affecting weapon directivity patterns was the muzzle brake, which causes directivity patterns to become almost circular. The exceptions were recoilless rifles. Weight equivalency tables were found to be a function of tube size, with the longest tubes being the quietest, since the charges within them are the most contained. (Author)

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AD-A066 384

UNCLASSIFIED

PAGE

52

AD-A066 223

UNCLASSIFIED

099062

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099052

AD-A066 112 5/3 5/1

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLProfit Primer: An Evaluation of  
Alternate Profit Determination Models.

(U)

DESCRIPTIVE NOTE: Interim rept.,

MAR 79 86P Deponai, John M., III;

Adiguzel, Ramim Ilker;

REPT. NO. CERL-IR-P-99

CONTRACT: IAD-MCC-E-78-02

UNCLASSIFIED REPORT

DESCRIPTORS: \*Contract administration, \*Profits,  
\*Econometrics, Trade off analyses, Costs, Risk,  
Regulations, Department of Defense, Contracts

(U)

This report evaluates six profit determination  
models as candidates for selection as the official  
profit determination procedure for the U.S.

Army Corps of Engineers. In addition, it

provides a summary of current profit theory; profit  
regulatory requirements; Government profit policy;

and 12 profit factors, including the four major

categories which comprise the weighted guideline

(WGL) method of the Defense Acquisition

Regulation (DAR). Of the six profit

determination models considered, one will be selected

for further development and calibration. This

report documents the first phase of a study which

will define fair and reasonable profit on

construction contracts, change orders, and architect-

engineer (A-E) contracts, provide a procedure for

computing a fair and reasonable profit objective on

Corps contracts, and facilitate the implementation

of a selected profit procedure. (Author)

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AD-A066 112

UNCLASSIFIED

PAGE

53

AD-A065 827

UNCLASSIFIED

099062

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A065 827 13/13 9/2

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLComputer-Aided Engineering and Architectural  
Design System (CAEADS). Volume I.  
Summary.

(U)

DESCRIPTIVE NOTE: Final rept.,

JAN 79 55P Daniel, Mann, Johnson,;

Mendenhall,;

REPT. NO. CERL-TR-P-97-VOL-1

PROJ: 4A762731A741

TASK: T1

UNCLASSIFIED REPORT

DESCRIPTORS: \*Construction, \*Military engineering,  
\*Computer aided design, Computer programs,  
Computerized simulation, Military facilities

IDENTIFIERS: CAEADS(Computer Aided Engineering  
and Architectural Design System), WU020,

AS741, PE62731A

(U)

(U)

The Computer-Aided Engineering and  
Architectural Design System (CAEADS) is being  
developed for the U.S. Army Corps of  
Engineers by the Construction Engineering  
Research Laboratory (CERL) in Champaign,  
Illinois. This report summarizes the system

requirements, preliminary hardware/software systems

design, anticipated costs and benefits, project

master plan for system development, and study

results, conclusions, and recommendations. It also

serves as an introduction to Volumes II through

VIII. CAEADS is an integrated system of computer

aid to the design process for military construction,

supporting the design and review activities of

Corps District Offices and the design

activities of private Architect/Engineer firms

under contract to the Corps. CAEADS objectives are

to improve the quality of facility design, enhance

the responsiveness of MC design processes to

project needs, improve the productivity of Corps

design staff, facilitate design review, and thus

reduce the costs of constructing and operating

military facilities.

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## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A065 659 13/13 11/12

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN ILL

A Family of Components for the Wood Panelized Prefabricated Building System. (U)

DESCRIPTIVE NOTE: Special rept.,

JAN 79 69P Kao, A. M.; Whiteside, T. M.

REPT. NO. CERL-SR-M-255

PROJ: 4A763734DT08

TASK: 06

## UNCLASSIFIED REPORT

DESCRIPTION: \*Prefabricated buildings, \*panels, \*wood, structural engineering, theater level operations, military facilities, concrete, floors, tropical regions, deserts, field tests, foam, technology transfer

IDENTIFIERS: PE63734A, AST08, WU002

IAC ACCESSION NUMBER: PL-033612

IAC DOCUMENT TYPE: PLASTIC -HARD COPY--

This report presents the design of a prefabricated, panelized wood building system capable of housing a large percentage of facilities required in the Theater of Operations. Configurations of the building structural system include 24-, 36-, and 48-ft (7.3-, 10.9-, and 14.6-m) widths and 8- and 12-ft (2.4- and 3.7-m) eave heights. Optional components include raised wood and concrete floors as well as modifications for temperate, tropical, and desert climates. This report also presents the results of a field test on a foam/wood panelized building system conducted at Fort Rucker using military personnel. The result indicates the competitiveness of the system in comparison with AFCS Facility 3403; up to 40 percent reduction in labor requirements can be reached. (Author) (U)

IAC SUBJECT TERMS: P--(U)Shelters, Spray applications, Urethanes, Roofing, Panels, Buildings, Flame retardants, Insulation, Flooring, Wall panels, Prefabricated structures, Material costs, Cost comparisons, Military applications, Wood, Laminates, 22 Unlimited. ;

AD-A065 659

UNCLASSIFIED

PAGE

54

AD-A065 457

UNCLASSIFIED

099062

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A065 457 13/13

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN ILL

A Prototype Procedure for Facility Design Reviews. (U)

DESCRIPTIVE NOTE: Interim rept.,

FEB 79 36P Brauer, Roger L.; Dressel, David L. ;

REPT. NO. CERL-IP-E-145

PROJ: 4A762719AT41

TASK: 03

## UNCLASSIFIED REPORT

DESCRIPTION: \*Construction, \*facilities, military requirements, Army, Experimental design, Prototypes, Value engineering

IDENTIFIERS: PE62719A, AST41, WU004

This report covers the initial phase of a study to develop a prototype procedure for the review of the facility designs that will insure that the facility is fully functional when constructed. This report describes who would be involved in the review process, the responsibilities that each party would bear, how the process activities should be ordered, and how major parties would conduct their portions of the review. (Author) (U)

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A064 925 13/3 5/3

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLConstruction Equipment Cost Guide. Volume  
2. (U)

DESCRIPTIVE NOTE: Final rept.,  
NOV 77 907P Neely,E. ;  
REPT. NO. CERL-TR-P-52-VOL-2

## UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: See also Volume 1, AD-A064 924.  
Supersedes report dated Oct 75, AD-A016 910.  
DESCRIPTORS: \*Construction equipment, \*Costs,  
Loaders, Trucks, Cost analysis, Diesel engines,  
Bulldozers, Generators, Tables(Data), Cost  
estimates, Manuals, Army equipment  
IDENTIFIERS: \*Construction Equipment Cost  
Guides (U)

This guide presents a systematic approach for  
Department of the Army field pricing support  
personnel (estimators, negotiators, price analysts  
auditors, etc.) to use in estimating hourly  
ownership and operating rates for construction  
equipment. The guide is intended for use in  
negotiated construction procurements which require an  
independent government estimate by regulation.  
(Author) (U)

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A064 924 13/3 5/3

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLConstruction Equipment Cost Guide. Volume  
1. (U)

DESCRIPTIVE NOTE: Final rept.,  
NOV 77 811P Neely,E. ;  
REPT. NO. CERL-TR-P-52-VOL-1

## UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: See also Volume 2, AD-A064 925.  
Supersedes report dated Oct 75, AD-A017 271.  
DESCRIPTORS: \*Construction Equipment, \*Costs,  
Loaders, Trucks, Tables(Data), Cost  
estimates, Bulldozers, Army procurement,  
Operation, Hoists, Army equipment, Rubber,  
Steel  
IDENTIFIERS: \*Construction equipment cost  
guides (U)

This guide presents a systematic approach for  
Department of the Army field pricing support  
personnel (estimators, negotiators, price analysts  
auditors, etc.) to use in estimating hourly  
ownership and operating rates for construction  
equipment. The guide is intended for use in  
negotiated construction procurements which require an  
independent government estimate by regulation.  
(Author) (U)

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099052

AD-A064 813 11/12 11/3

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLInvestigation of Techniques for the Rapid  
Preparation of Painted Wood Surfaces. (U)DESCRIPTIVE NOTE: Special rept.,  
JAN 79 32P Howdysell, P. A.; Olsson,T. ;  
REPT. NO. CERL-SR-M-257  
PROJ: 4A762731A141  
TASK: T9

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Wood, \*Paints, Surface finishing,  
Removal, Layers, Test and evaluation,  
Microwaves, Heating, High pressure, Water jets,  
Sand, Blast, Steam cleaning, Hot gases,Torches (U)  
IDENTIFIERS: PE62731A, AST41, WU028 (U)

The major contributing factor to paint failure is excessive buildup of multiple coats of paint applied over a period of years. Although old paint can be removed adequately before repainting, the classical removal processes are costly and impractical. This study examines equipment which, according to the claims of the manufacturers, removes paint easily and inexpensively from wooden surfaces. In addition, tests were conducted to determine the feasibility of developing equipment to remove paint through microwave heating. (U)

AD-A064 813

UNCLASSIFIED

PAGE

56

AD-A064 731

UNCLASSIFIED

099062

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A064 731 11/2 13/8

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLInvestigation of Materials for Waterproofing  
Leaky Concrete Ammunition-Storage Bunkers  
from the Inside. (U)DESCRIPTIVE NOTE: Special rept.,  
JAN 79 65P Kanarowski, Stanley M. ;  
REPT. NO. CERL-SR-M-256

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Concrete, \*Weatherproofing,  
Ammunition, Storage, Leakage(Fluid),  
Construction materials, Military facilities,  
Waterproofing, Cracks, Repair, Hydrostatic  
pressure, Test and evaluation (U)

This investigation is concerned with the problem of water seepage in concrete ammunition-storage bunkers and the findings of an evaluation of crack-waterproofing materials to be used for such repairs inside bunkers. The study included: (1) a survey of military installations to determine the nature of the seepage and remedial methods, (2) a survey of manufacturers for material recommendations and samples, and (3) a testing program involving the waterproofing and hydrostatic testing of cracked concrete slabs. (Author) (U)

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A064 698 13/2 5/3 9/2

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLSystems Approach to Life-Cycle Design of  
Pavements. Volume III. LIFE2 program  
Listing.

(U)

DESCRIPTIVE NOTE: Final rept.,  
JAN 79 453P Lindow, Edward S. ;  
REPT. NO. CERL-TR-M-253-VOL-3  
PROJ: 4A763734DT08  
TASK: 01

## UNCLASSIFIED REPORT

Availability: Document partially illegible.  
SUPPLEMENTARY NOTE: See also Volume I, AD-A061  
157.

DESCRIPTORS: \*Pavements, \*Life cycle costs,  
\*Computer programs, \*Systems approach, Civil  
engineering, Runways, Roads, Subroutines,  
Materials laboratories, Maintenance management,  
Statistical data, Construction materials, Road  
building equipment  
IDENTIFIERS: LIFE2 Automated system, PE63734A,  
AST08, WU001

(U)

(U)

This report is the third volume of a three-volume  
report which documents an automated system  
(LIFE2) for analyzing pavement designs and  
maintenance and repair strategies based on life-cycle  
costs. LIFE2 models existing Corps of Engineers  
criteria for designing rigid and flexible pavements  
for airfields, roads, and streets. The program  
includes analytical procedures for evaluating  
earthwork, drainage, and frost protection  
requirements in addition to maintenance costs. The  
resulting combinations of design schemes and  
maintenance strategies are ranked by total cost over  
the design life of the pavement. Volume I is the  
LIFE2 Users Manual, Volume II is the LIFE2  
System Documentation, and Volume III is the  
LIFE2 Program Listing. (Author)

(U)

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A064 657 5/2 13/2 9/3

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLProcedures for Collection of Reliability,  
Availability, and Maintainability Data on  
Electrical and Mechanical Systems.

(U)

DESCRIPTIVE NOTE: Special rept.,  
JAN 79 60P Takemori, Edward M. ; Pollock,  
M. J. ;  
REPT. NO. CERL-SR-E-137  
PROJ: 4A763734DT08  
TASK: 07

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Data management, \*Information systems,  
Collecting methods, Army Corps of Engineers,  
Reliability, Maintainability, Data bases,  
Automation, Management information systems,  
Electrical engineering, Mechanical engineering  
IDENTIFIERS: PE63734A, AST08, WU003

(U)

(U)

This report presents the results of a study of  
methods to acquire and store data on the reliability,  
availability, and maintainability (RAM) of  
electrical and mechanical systems. Data  
acquisition methods previously used by the Corps of  
Engineers were reviewed and new methods and  
equipment now being developed were evaluated. Forms  
are proposed to aid in the collection and handling of  
information in a logical manner. Methods for  
storing data either manually or by computer are also  
PRESENTED. The results show that new computer  
systems, together with available communications  
equipment and the proposed forms, can be combined to  
provide an efficient and economical means of  
acquiring and storing RAM data. (Author)

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AD-A064 698

UNCLASSIFIED

PAGE

57

AD-A064 657

UNCLASSIFIED

099062

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A064 650 13/3 9/2

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLFirst Annual Summary of CAEADS Development  
Activities.

(U)

DESCRIPTIVE NOTE: Interim rept.,

MAR 78 53P Kim,Seung-Jai ;Larson,R.

A. ;

REPT. NO. CERL-IR-P-93

PROJ: 4A763734DT03

TASK: 01

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Military engineering, \*Computer aided instruction, Construction, Research facilities, Integrated systems, Architecture, Computer applications, Operations research, Reports, Computers

(U)

IDENTIFIERS: CAEADS(Computer Aided Engineering and Architectural Design System), Computer aided engineering and architectural design system, PE63734A, AST03, WU005

(U)

This report presents a status summary on Computer Aided Engineering and Architectural Design System (CAEADS) development activities for FY77. The report highlights accomplishments to date, planned research activities, and challenges to progress that require consideration by management.

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(Author)

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A064 356 13/2

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLSimplified Sanitary Landfill Design and  
Operation Analysis.

(U)

DESCRIPTIVE NOTE: Final rept.,

DEC 78 55P Gerdes,G. L. ;Donahue,B.

A. ;

REPT. NO. CERL-TR-N-57

PROJ: 4A762720A896

TASK: T2

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Land use, \*Waste disposal, \*Sanitary engineering, Military facilities, State of the art, Site selection, Solid wastes, Pollution abatement, Environmental engineering, Soil classification

(U)

IDENTIFIERS: Landfills, PE62720A, AS896, WU007

(U)

This report surveys and summarizes state-of-the-art practices in the design and operation of sanitary landfills. It was written at the request of the Office of the Chief of Engineers to be used as guidance for the Facility Engineers at Army military installations. All aspects of sanitary landfills are covered, including site selection, design, pollution control, operation, and final closure. Special attention is given to the U.S. Environmental Protection Agency's 'Guidelines for the Land Disposal of Solid Waste,' which are mandatory for Federal agencies. (Author)

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UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A063 936 9/2 13/1

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN ILL

Recommended Interface Standards for an Army Standard Energy Monitoring and Control System.

(U)

DESCRIPTIVE NOTE: Final rept.,

DEC 78 37P Hall, James L. ;

REPT. NO. CERL-TR-E-140

PROJ: 4A762721A141

TASK: 16

UNCLASSIFIED REPORT

DESCRIPTORS: \*Data transmission systems, \*Standards, Interfaces, Monitors, Acceptability, Energy management, Monitoring, Energy consumption, Control systems, Decentralization, Modules(Electronics), Compatibility, Army, Computer communications, Parallel processors, Serial processors, Bus conductors  
IDENTIFIERS: EMCS(Energy Monitoring and Control System), WU010, AST41, PER2721A

(U)

(U)

This report evaluated existing interfacing standards for use with an Army Standard Energy Monitoring and Control System (EMCS). The interfacing requirements for the Army Standard EMCS and the criteria for making the required evaluations are presented. Descriptions of the existing standards which were found to be candidates for evaluation are presented, along with the results of the evaluations. This report recommends that for the Army Standard EMCS, a concept similar to IEEE Standard 583 be used for parallel data interface and that the EIA R232-C standard be used for serial data interfaces. (Author)

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A063 239 21/4 13/9

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN ILL

Fuels: State of the Art in Industrial Utilization.

(U)

DESCRIPTIVE NOTE: Final rept.,

NOV 78 146p Kong, P. ; Lee, M. ; Hathaway, S. ;

REPT. NO. CERL-TR-E-135

CONTRACT: MIPR-N00025-4-1041

UNCLASSIFIED REPORT

DESCRIPTORS: \*Fuels, \*Industrial equipment, Coal, Refuse collection, Fuel oil, Petroleum products, Energy conversion, Boilers, State of the art, Handling, Storage, Industrial research, Technology transfer

(U)

This study reviews the state of the art of industrial-scale boiler fuel use for supervisory personnel. Fuels considered were coal, petroleum fuel oil, and refuse. The sections on coal and oil deal with the basics of selection, equipment and technology for handling and storage, and equipment and technology of combustion. In addition, coal gasification processes are discussed. The section on refuse discusses the technology of converting refuse to energy (CRE). It describes in detail current major package CRE systems and considerations for co-firing refuse in boilers currently designed for firing coal. (Author)

(U)

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A063 213 11/6 13/8

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILL

Determination of the Effect of Current and  
Travel Speed of Shielded Metal-Arc  
Welding on the Mechanical Properties of A36,  
A516, and A514 Steels.

(U)

DESCRIPTIVE NOTE: Interim rept.,

NOV 78 54p Weber, R. A. ;  
REPT. NO. CERL-IR-M-248  
PROJ: 4A762731A141  
TASK: 17

UNCLASSIFIED REPORT

DESCRIPTORS: \*Steel, \*Arc welding, Mechanical  
properties, Electric current, Velocity, Shielding,  
Tensile properties, Impact strength, Butt welding,  
Joints, Pressure vessels, Carbon steels  
IDENTIFIERS: Steel A36, Steel A516, Steel  
A514, WU007, AST41, PE62731A

(U)

(U)

IAC ACCESSION NUMBER: MCIC-106352

IAC DOCUMENT TYPE: MCIC -HARD COPY--

This study was performed to determine the limits on  
current and travel speed -- in particular nugget area  
-- as defined by the results of tensile and impact  
properties of butt joint welds produced by manual  
shielded metal-arc welding in carbon steel (A36),  
pressure-vessel steel (A516), and high-strength,  
low-alloy steel (A514). (Author)

(U)

IAC SUBJECT TERMS:

M--(U)Engineering Steel, A36,  
A516, A514, Shielded Metal Arc Welding,  
Welds, Butt Welds, Charpy Impact, Ultimate  
Tensile Strength, Tensile Yield Strength, True  
Stress-True Strain, HAZ, Notch Impact  
Strength, Tear Test.

AD-A063 213

UNCLASSIFIED

PAGE

60

AD-A063 092

UNCLASSIFIED

099062

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A063 092 17/2 9/2

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILL

A Survey of the Properties of Computer  
Communication Protocols. Volume I. The  
Function, Properties, Specification, and  
Analysis Methods of Computer Communication  
Protocols.

(U)

DESCRIPTIVE NOTE: Final rept.,

SEP 78 44p Itzkowitz, Avrum E. ;  
REPT. NO. CERL-TR-O-1-VOL-1  
PROJ: 4A762725AT11  
TASK: 02

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: See also Volume 2, AD-A061  
647.

DESCRIPTORS: \*Computer communications, Network  
flows, Functional analysis, Computer graphics,  
Programming languages, Communications networks,  
Data processing terminals, Message processing,  
Three terminal networks, Remote terminals  
IDENTIFIERS: PE62725A, AST11, WU209

(U)

(U)

This report is a two-part study on the properties  
of computer communication protocols. This volume  
focuses on the function and properties of current  
computer communication protocols. Many different  
approaches to the specification and analysis problem,  
ranging from textual description to formal graphical  
techniques, are presented and discussed.

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## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A062 720 5/3 9/2

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLAnalysis of Real Estate Status Reporting  
Procedures.

(U)

DESCRIPTIVE NOTE: Final rept..

OCT 78 91P Altheide, Carl P. ; Polin, G.  
M. ;  
REPT. NO. CERL-TR-P-96

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Economics. \*Data processing.  
Information processing. Army planning. Management  
planning and control. Acquisition. Disposal. Flow  
charting. Reports

(U)

IDENTIFIERS: \*Real estate status. Homeowners  
assistance

(U)

This report presents the results of analysis of six automated data processing (ADP) systems used for status reporting of real estate activities. Details of the existing procedures, information flow between Corps of Engineers Districts and the Directorate of Real Estate at the Office of the Chief of Engineers, and system analyses are included for the real estate status reporting procedures in the acquisition, disposals, int leasing, and outgranting activities, and the relocation and homeowner's assistance programs. Interim recommendations for streamlining the six ADP systems to improve the timeliness of information, reduce manual effort, and eliminate redundant or unnecessary data reporting are given for the systems both individually and collectively. Recommendations for analyzing additional ADP systems with which real estate personnel are involved are also presented. Finally, preparation of the functional requirements and preliminary design of upgraded, consolidated real estate status reporting system is recommended. (Author)

(U)

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A062 719 13/1

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLDesign of Solar Heating and Cooling  
Systems.

(U)

DESCRIPTIVE NOTE: Final rept..

OCT 78 57P Jontich, David M. ; Leverenz,  
Donald James ; Hittle, Douglas C. ; Walton,  
George N. ;  
REPT. NO. CERL-TR-E-139  
PROJ: 4A762731AT41  
TASK: T6

## UNCLASSIFIED REPORT

Availability: Document partially illegible.

DESCRIPTORS: \*Solar heating. \*Cooling. \*Solar  
energy. \*Cost analysis. \*Computerized simulation.  
Computer aided design. Solar collectors.  
Buildings

(U)

IDENTIFIERS: BLAST(Building Loads Analysis and  
Systems Thermodynamics) Program, WU021.  
AST41, PE62731A

(U)

This report presents a method for making an energy and an economic cost/benefit analysis of solar energy systems. A graphical method is presented for evaluating the performance of solar domestic hot water systems, solar heating systems, and solar heating and cooling systems. Methods for selecting the optimum collector area based on benefit-to-cost ratio and for systematically making detailed design calculations using the Building Loads Analysis and System Thermodynamics (BLAST) computer simulation program are also presented. Practical considerations for solar system designs are discussed. The methods presented provide the required accuracy for both initial evaluations and final design calculations. Examples are provided throughout the text to aid in using the methods described. (Author)

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UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099052

AD-A062 718

20/1

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILL

Predicting Noise Impact in the Vicinity of  
Small-Arms Ranges.

(U)

DESCRIPTIVE NOTE: Interim rept.,  
OCT 78 22P McBryan, Joseph;  
REPT. NO. CERL-IR-N-61  
PROJ: 4A762720A896  
TASK: 03

UNCLASSIFIED REPORT

Availability: Document partially illegible.  
DESCRIPTORS: \*Noise(Sound), \*Small arms,  
Ranges(Facilities), Predictions, Data  
reduction, Army Operations, Tables(Data),  
Measurement  
IDENTIFIERS: WU005, AS896, PE62720A

(U)  
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This report describes the data collection and  
reduction methods used to determine equations to  
provide sound-exposure level (SEL) vs distance  
curves for impulsive noise at Army small-arms  
ranges. It also describes (1) the method for  
calculating SEL per round at any distance for M14  
and M16 rifles, a .45 caliber pistol, and a M60  
machine gun, and (2) the tabular procedure for  
predicting the day/night average sound level  
(Ldn) at Army small-arms ranges. This in  
turn allows for prediction of noise impacts on or  
adjacent to Army installations. (Author)

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UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A062 653

13/2

10/2

15/5

8/8

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILL

Technical Evaluation Study: Energy  
Recovery from Solid Waste at Fort Dix, NJ  
and Nearby Civilian Communities.

(U)

DESCRIPTIVE NOTE: Final rept.,  
OCT 78 57P Collishaw, A. N.; Hathaway,  
S. A.;  
REPT. NO. CERL-TR-E-136

UNCLASSIFIED REPORT

DESCRIPTORS: \*Solid wastes, \*Energy conversion,  
\*Military facilities, \*New Jersey, Economics,  
Feasibility studies, Savings, Waste management,  
Communities, Steam, Heating  
IDENTIFIERS: \*Landfills

(U)  
(U)

This study investigated the technical and economic  
feasibility of energy and materials recovery from  
solid waste presently landfilled at Fort Dix,  
NJ. The waste stream consists of conventional  
mixed solid waste generated at Fort Dix and  
adjacent McGuire Air Force Base (AFB).  
The available energy content of the waste stream is  
approximately 21.4 x 1,000,000 Btu/year from 18,600  
tons/year mixed solid waste. Combining civilian  
waste from nearby communities with the military waste  
stream was considered. A total of 73,900 tons/year  
could be processed and the heat energy utilized.  
(Author)

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AD-A062 718

UNCLASSIFIED

PAGE

62

AD-A062 653

UNCLASSIFIED

099062

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A062 599 5/2 15/3 2/2

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLData Requirements for Army Land Use  
Planning and Management.

(U)

DESCRIPTIVE NOTE: Interim rept.,

NOV 78 88P Lozar, Robert C. ; Anderson,

J. Robert ; Balbach, Harold ;

REPT. NO. CERL-IR-N-55

PROJ: 4A762720A896

TASK: 04

UNCLASSIFIED REPORT

DESCRIPTORS: \*Resource management, \*Military facilities, \*Army planning, \*Land use, Data acquisition, Military requirements, Mathematical models, Soil erosion, Flood control, Ground water, Water pollution, Watersheds, Wildlife, Agriculture, Forestry, Air quality, Water quality, Noise

(U)

IDENTIFIERS: Analytical models, WU001, AS896,

(U)

PE62720A

Data needed for Department of the Army (DA) installation natural resources management and planning were surveyed and analyzed to aid compliance with existing and projected Army policies. The methodology used included a survey of the data requirements of 32 currently available analytical models and a subsequent survey of existing data sources to supply input into those models. The analytical models surveyed covered areas such as soil erosion, flood susceptibility, groundwater pollution, watershed runoff, wildlife management, visual impact, agricultural productivity, forest management, air quality, water quality, and noise levels. Criteria for analytical models and data sources are suggested. Five data sources selected from among 16 surveyed, are reviewed in detail, and their performance as input sources to the surveyed analytical models is evaluated. (Author)

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AD-A062 599

UNCLASSIFIED

PAGE

63

AD-A061 647

UNCLASSIFIED

099062

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A061 647 9/2

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILL

A Survey of the Properties of Computer Communication Protocols. Volume II. Future Developments of Computer Network Protocols.

(U)

DESCRIPTIVE NOTE: Technical rept.,

SEP 78 37P Liu, J. W. S. ; Mickunas,

M. D. ;

REPT. NO. CERL-TR-O-1-VOL-2

PROJ: 4A762725AT11

TASK: 02

UNCLASSIFIED REPORT

DESCRIPTORS: \*Computer communications, Information processing, Communications networks, Message processing, Access, Switching logic, Electronic switching, Transfer switches, Control systems, Network flows

(U)

IDENTIFIERS: Protocols, PE62725A, WU209

(U)

This report is the second part of a two-part study on the properties of computer communication protocols. It is concerned primarily with the future development of protocols, particularly a projection of the state of the art of protocols of different levels. The packet switching network is explained, and the possible future developments in low-level protocols are discussed, including end-to-end protocols and user-level protocols that support functions such as file transfer and remote job entry.

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## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A061 638 13/2 5/1

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLTypical Contract Specifications for  
Collection of Refuse and Sanitary-Landfill  
Operations.

(U)

DESCRIPTIVE NOTE: Special rept.,

SEP 78 36P Donahue, Bernard A. ; Cannon,

John ; Becker, Harry ;

REPT. NO. CERL-SR-N-59

PROJ: 4A762720A896

TASK: 02

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Refuse collection, \*Solid wastes,  
\*Waste management, \*Contract administration,  
Specifications, Military facilities, Conservation,  
Resource management, Pollution, Environmental  
protection

IDENTIFIERS: Sanitary landfills

(U)

(U)

This report presents the results of an investigation to determine guide specifications for solid waste collection and disposal. The investigators reviewed existing TRADOC solid-waste contracts with respect to their legal correctness, completeness, simplicity, and ability to address the most recent resource recovery requirements. A single model contract, which addresses the requirements of the Resource Conservation and Recovery Act of 1976, was written from the best of the existing contracts. This general solid-waste management contract contains pertinent information on solid-waste collection, resource recovery, and sanitary-landfill operation. (Author)

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AD-A061 638

UNCLASSIFIED

PAGE

64

AD-A061 158

UNCLASSIFIED

099062

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A061 158 5/2 13/2 9/2

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLSystem Documentation for Computer-Aided  
Environmental Legislative Data System.

(U)

DESCRIPTIVE NOTE: Final rept.,

SEP 78 159p Welsh, Rikki L. ;

REPT. NO. CERL-SR-N-31

PROJ: 4A762720A896

TASK: 01

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Legislation, \*Environmental  
engineering, \*Computer program documentation,  
\*Information processing, Regulations, Standards,  
Vocabulary, Subject indexing, Information  
retrieval, State law, Federal law, Data  
acquisition, Data storage systems, Management  
information systems, Data processing, Military  
engineering, Army planning, Subroutines

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IDENTIFIERS: \*CELDS (Computer Aided Environmental  
Legislative Data System), Keywords,  
PE62720A, AS896, WU002

This report presents the total system documentation for the Computer-Aided Environmental Legislative Data System (CELDS). All information necessary for the maintenance, update, and modification of the CELDS software is presented. See also AD-A061 126.

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## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099052

AD-A061 157 13/2 5/1 5/2

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN ILL

System's Approach to Life-Cycle Design of Pavements. Volume I. LIFE2 User's Manual.

(U)

DESCRIPTIVE NOTE: Final rept.,

SEP 78 93P Lindow, E. S. ;

REPT. NO. CERL-TR-M-253-VOL-1

PROJ: 4A7637340T08

TASK: 01

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Pavements, \*Life cycle costs, \*Manuals, User needs, Experimental design, Runways, Roads, Computer programs, Maintenance, Pavement bases, Construction, Civil engineering, Concrete

(U)

IDENTIFIERS: PE63734A, AST08, WU001

(U)

This report is the first of a three-volume report which documents an automated system (LIFE2), for analyzing pavement designs and maintenance and repair strategies based on life-cycle costs. LIFE2 models existing Corps of Engineers criteria for designing both rigid and flexible pavements for airfields, roads, and streets. The program also includes analytical procedures for evaluating earthwork, drainage, and frost protection requirements, as well as maintenance costs. The resulting combinations of design schemes and maintenance strategies are ranked by total cost over the design life of the pavement.

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## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A061 127 13/2 14/1

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN ILL

Engineering and Design Cost/Rate Forecasting System. Volume I. Model Development and Data Analysis.

(U)

DESCRIPTIVE NOTE: Final rept.,

SEP 78 67P Neathammer, Robert D. ;

REPT. NO. CERL-TR-P-94-VOL-1

## UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: See also Volume 2, AD-A061 108.

DESCRIPTORS: \*Construction, \*Cost estimates, Mathematical models, Forecasting, Rates, Computer programs, Army Corps of Engineers, Military facilities, Buildings, Computer graphics, Costs, Engineering, Mathematical prediction, Confidence limits

(U)

IDENTIFIERS: TEKTRONIX 4051 graphics system, Military construction, Design

(U)

This report discusses the development of statistically based models for forecasting engineering and design (E/D) costs in order to establish military construction cost targets for Corps of Engineers Districts and Divisions. The model developed is programmed on the TEKTRONIX 4051 graphics system in the Office of the Chief of Engineers (OCE). When the model was verified, only one of 18 predictions was outside the prediction limits (95% confidence). The model is best used to project E/D costs 1 year in advance, and it is recommended that it be used to help establish cost targets for applicable Corps Divisions/Districts.

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UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A061 126 5/2 13/2 9/2

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN ILL

Computer-Aided Environmental Legislative Data System (CELDS). User Manual.

(U)

DESCRIPTIVE NOTE: Final rept.,

SEP 78 116P VAN Weningh, J.; Patzer, J.;  
Welsh, R.; Webster, R.;  
REPT. NO. CERL-TR-N-56  
PROJ: 4A762720A896  
TASK: 01

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: Superseded Rept. no. CERL-TR-E-78, dated Nov 75, AD-A019 01A.  
DESCRIPTORS: \*Legislation, \*Environmental engineering, \*Information processing, Abstracts, Computer applications, Regulations, Standards, Vocabulary, Subject indexing, Information retrieval, Data acquisition, State law, Federal law, Data storage systems, Management information systems, Data processing, Military engineering, Army planning

IDENTIFIERS: CELDS (Computer Aided Environmental Legislative Data System), Keywords, Users manuals, WU002, AS866, PE62720A

The Computer-Aided Environmental Legislative Data System (CELDS) is a collection of current federal and state environmental laws, regulations, and standards. Abstracts of the legislation provide the system user with quick access to current controls on activities that may influence the environment. In addition, these abstracts supply data for environmental impact analysis and environmental quality management. This report provides a cursory description of CELDS data fields and user instructions for accessing CELDS, formulating searches, and displaying the selected laws. This report contains copies of the current list of CELDS attributes, keywords, and state abbreviations.

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AD-A061 126

UNCLASSIFIED

PAGE

66

AD-A061 123

UNCLASSIFIED

099062

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A061 123 13/2 14/2

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN ILL

User Evaluation of CERL Air, Water/Wastewater, and Solid Waste Survey Guidelines.

(U)

DESCRIPTIVE NOTE: Special rept.,

SEP 78 43P Singh, Vinod V.; Donahue, B.  
A.;  
REPT. NO. CERL-SR-N-58  
PROJ: 4A162121A896  
TASK: 01

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: See also Rept. nos. CERL-TR-N-5, AD-A021 01A, CERL-TR-N-11, AD-A033 223, and CERL-TR-N-75, AD-A018 879.

DESCRIPTORS: \*Pollution, \*Waste management, \*Survey, \*Air pollution, \*Water pollution, \*Waste water, \*Environmental protection, \*User needs, \*Emission, \*Solid waste, \*Pollution abatement, \*Sanitary engineering, \*Data acquisition  
IDENTIFIERS: AS866, AUC04, PE62121A

(U)  
(U)

This report presents a user evaluation of three installation pollution survey guidelines published by the Construction Engineering Research Laboratory for the areas of air, water/wastewater, and solid waste. The three guidelines are:

(1) Air Pollution Survey Guidelines (CERL-TR-N-5/AD-A029 633), (2) Water/Wastewater Survey Guidelines (CERL-TR-N-11/AD-A033 223), and (3) Installation Solid Waste Survey Guidelines (CERL-TR-E-75/AD-A018 879). These

guidelines were evaluated by users to such quality parameters as comprehensiveness, practicality, and Army relevance. The user evaluation revealed that the overall rating of these guidelines was generally 'excellent' to 'good.' Suggested areas of improvement were: (1) simplifying or eliminating the highly technical areas, (2) expanding information and coverage of emission factors, (3) providing more detailed information on state pollution regulations, (4) providing more examples on principles presented in the

(U)



AD-A061 108 13 2 14/1

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILL

Engineering and Design Cost/Rate  
Forecasting System, Volume II, User's  
Manual.

(U)

DESCRIPTIVE NOTE: Final rept.,

SEP 78 24P Heathman, Robert D. ;  
REPT. NO. CERL-TR-94-VOL-2

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: See also Volume 1, AD-A061  
127.

DESCRIPTORS: \*Construction, \*Cost estimating,  
Computer programs, Mathematical models, Rates,  
Forecasting, Linear regression analyses, Army  
Corps of Engineers, Military facilities,  
Buildings, Computer graphics, Costs,  
Engineering, Mathematical prediction  
IDENTIFIERS: TEKTRONIX 4051 graphic system,  
Military construction, User manuals,  
BASIC programming lang.

(U)

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This volume describes the use of the Engineering  
and Design (E/D) Cost/Rate Forecasting  
System to maintain E/D data, to update the E/  
D forecasting model, and to forecast future E/D  
costs and rates. Volume I provides information on  
the model development and data analysis. (Author)

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AD-A061 108

UNCLASSIFIED

PAGE

67

AD-A061 091

UNCLASSIFIED

099062

AD-A061 091 15/5 5/1

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILL

Management Summary, Facilities Engineering  
Equipment Maintenance System (FEEMS).

(U)

DESCRIPTIVE NOTE: Final rept.,

SEP 78 54P Brown, David W. ;  
REPT. NO. CERL-TR-P-95  
PROJ: 4A762719A141  
TASK: T9

UNCLASSIFIED REPORT

DESCRIPTORS: \*Maintenance management, \*Military  
facilities, Army, Army equipment, Maintenance,  
Scheduling, Management information systems,  
Integrated systems  
IDENTIFIERS: FEEMS(Facilities Engineering  
Equipment Maintenance System), PE62719A,  
AST41, WU030

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This report is a management summary of the  
capabilities provided by the Facilities  
Engineering Equipment Maintenance System  
(FEEMS). FEEMS, a subsystem of the Integrated  
Facilities System (IFS), was developed for use  
by the installation-level Directorate of  
Facilities Engineering to support recurring  
maintenance activities on critical equipment and  
systems in Army facilities. FEEMS is designed to  
operate with IFS and uses code structures common to  
IFS. The interface of FEEMS and IFS will  
eliminate the need to use separate work order, labor,  
equipment, and material reporting systems; however,  
it is imperative that the Facilities Engineer  
(FE) develop a thorough plan for recurring  
maintenance before implementing the system. This  
report provides an overview of the FEEMS functions,  
implementation procedures, and benefits and costs  
related to the system. The FE can use this  
report to evaluate the potential application of  
FEEMS to a given situation and to evaluate the  
requirements for such an application. (Author)

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AD-A060 958

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CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILL

True-Integrating Environmental Noise  
Monitor and Sound Exposure Level Meter.  
Volume I. User's Guide.

(U)

DESCRIPTIVE NOTE: Final rept.,

MAY 78 23P Schomen, P. D. ; Avenbuch, A.

J. ; Weissberg, M. W. ;

REPT. NO. CERL-TR-N-41-VOL-1

PROJ: DA762720A896

TASK: 03

UNCLASSIFIED REPORT

DESCRIPTORS: \*Impulse noise, \*Noise(Sound),  
Noise pollution, Monitoring, User needs,  
Measurement, Data acquisition, Environmental  
tests

(U)

IDENTIFIERS: PE62720A, WU001

This report summarizes desirable features and  
factors in environmental noise monitors, in general,  
and in particular, monitors which measure the  
impulsive noise created by military sources.  
Particular emphasis is placed on the need to have a  
true-integrating detector to properly measure these  
impulsive sources. Based on these needs, a noise  
monitor has been designed and constructed. This  
report summarizes the operations and components of  
this monitoring unit. Volume II describes the  
construction, parts lists, layouts, and schematics of  
the monitoring unit. (Author)

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AD-A060 958

UNCLASSIFIED

PAGE

68

AD-A060 883

UNCLASSIFIED

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AD-A060 883

13/2

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CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILL

Development of a Pavement Maintenance  
Management System. Volume IV. Appendices  
A through I. Maintenance and Repair  
Guidelines for Airfield Pavements.

(U)

DESCRIPTIVE NOTE: Final rept. Jul 76-Sep 77,

SEP 77 160P Shahin, Mohamed Y. ; Darter,

Michael I. ; Kohn, Stann D. ;

REPT. NO. CERL-TR-C-76-VOL-4

PROJ: 2104

TASK: 3M

MONITOR: CEEDO TR-77-44-VOL-4

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: See also Volume 5, AD-A058  
860.

DESCRIPTORS: \*Pavements, \*Runways, \*Maintenance  
management, Concrete, Repair, Airports,  
Materials laboratories, Civil engineering,  
Environments, Temperature, Soil mechanics,  
Precipitation, Cracking(fracturing)  
IDENTIFIERS: LPN-CEEDO-77-014,  
WUCEEDO21043M01, PE63723F

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This volume presents the Appendices A through  
I. Appendix A contains the feasibility study of  
the consequences of maintenance and repair.  
Appendix B is an input guide to and flow chart of  
the PCI-1 computer program which calculates the  
pavement condition index (PCI). Appendix C  
contains the development of the environmental zones.  
Appendix D shows the questionnaires used on  
visits to Air Force Bases. Appendix E  
summarizes all PCI data collected in FY77.  
Appendix F presents the correlation study of  
PCI and profile roughness. Appendix G contains  
the information concerning maintenance and repair of  
features presented to the engineers attending the  
workshop. Appendix H describes an economic  
analysis procedure considering pavement performance.  
Appendix I contains the weighted performance  
questionnaires also presented at the workshop.  
(Author)

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## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A059 176 9/2 5/5 5/1

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLCleaninghouse Information System:  
Description and User Instructions.

(U)

DESCRIPTIVE NOTE: Final rept.,

AUG 78 17P Webster, Ronald D. ;Griffin,

Brenda ;

PT. NO. CERL-TR-N-53

PROJ: 4A762720A896

TASK: 01

UNCLASSIFIED REPORT

DESCRIPTORS: \*Management information systems,  
\*Environmental impact statements, \*Environmental  
management, Planning programming budgeting, Data  
bases, Computer files, Computer communications,  
Information retrieval, Instruction manuals,  
Directorates, State Government, Organizations,  
Regions

(U)

IDENTIFIERS: PE62720A, AS896, WU002

(U)

This report documents the development of the  
Cleaninghouse Information System (CHIS), a  
computerized subsystem of the Environmental  
Technical Information System (ETIS). CHIS  
provides ETIS users with up-to-date listings of  
state, regional, or local cleaninghouse agencies with  
which federal agencies must coordinate new projects  
or activities. The information provided by these  
cleaninghouses will prevent duplication of Federal  
and local efforts and insure compatibility of project  
planning. This report provides user instructions  
and guidance for retrieving and using appropriate  
information to coordinate Department of the Army  
Environmental Impact Assessments and  
Environmental Impact Statements with state and  
local agencies. (Author)

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AD-A059 176

UNCLASSIFIED

PAGE

69

AD-A059 058

UNCLASSIFIED

099062

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A059 058 13/13 5/5

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLLiterature Research on Living, Working, and  
Training Facility Environments.

(U)

DESCRIPTIVE NOTE: Special rept.,

AUG 78 60P Burgess, John H. ;Veneklasen,

W. D. ;

REPT. NO. CERL-SR-E-133

PROJ: 4A762719AT41

TASK: T3

UNCLASSIFIED REPORT

DESCRIPTORS: \*Habitability, \*Facilities,  
\*Personnel, \*Architecture, \*Military facilities,  
Environments, Training, Data bases, Human  
factors engineering  
IDENTIFIERS: Man-environment criteria, Bachelor  
housing, Academic facilities, Training facilities,  
Office facilities, PE62719A, ASI41,  
WU003

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This report discusses a manually accessible article  
file on habitability that has the capability of later  
being adapted to a semi-automatic or computerized  
terminal access system. Development of the article  
file, filing and accession methods, and sources of  
the literature searches are described. An example  
summary for one area of interest is presented.  
(Author)

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## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A058 860

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CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLDevelopment of a Pavement Maintenance  
Management System. Volume V. Proposed  
Revision of Chapter 3, AFR 93-5.DESCRIPTIVE NOTE: Final rept. Jul 76-Sep 77,  
OCT 77 193p Shahin, Mohamed Y. ;Darter,Michael I. ;Kohn, Starr D. ;  
REPT. NO. CERL-TR-C-76-VOL-5PROJ: 2104  
TASK: 3M

MONITOR: CEEDO

TR-77-44-VOL-5

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: See also Volume 1, AD-A048  
884.DESCRIPTORS: \*Pavements, \*Runways, \*Airports,  
Maintenance management, Air force facilities, Test  
and evaluation, Symposia, Air force research,  
Regulations, SurveysIDENTIFIERS: Pavement maintenance management system,  
Airfield pavement condition index, LPN-CEEDO-77-  
014, WUCEE0021043M01, PER3723F

The Air Force has for several years been actively engaged in the development of a Pavement Maintenance Management System. The first accomplishment of this study was the development of improved procedure for determining the relative condition of airfield pavements. These improved procedures are presented in detail in this report. These procedures were developed during FY 75 and 76 and validated by field tests during FY 76 and 77. Two conferences, attended by Command Pavement Engineers from all Major Commands, have been held at Tyndall AFB, Florida (30 Nov - 2 Dec 1976, 18 - 20 October 1977), to discuss and revise these procedures. It was the consensus of the attendees at these conferences that these procedures provided vastly improved methods for determining the relative condition of airfield pavements. Thus, CEEDO was requested, during the conference held in October 1977, to publish, in some form, instructions for the use of these procedures as soon as possible. As a result this

AD-A058 860

UNCLASSIFIED

PAGE

70

AD-A058 832

UNCLASSIFIED

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A058 832

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CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLRecommendations for Concrete Forming Kit for  
Theater of Operations Applications.DESCRIPTIVE NOTE: Final technical rept.,  
AUG 78 40P Knab, L. I. ;

REPT. NO. CERL-TR-M-52

UNCLASSIFIED REPORT

DESCRIPTORS: \*Kits, \*Concrete, \*Construction  
equipment, Material forming, Army equipment,  
Construction, Construction materials, Theater  
level operations, Military engineering

This study recommends components to be included in a kit for concrete forming to be used in Theater of Operations construction. The kit will provide versatile materials and equipment for rapid construction of concrete formwork. Appropriate components are recommended for inclusion in the kit based on efficiency, cost, versatility, logistics, simplicity, and erection time. Specific recommendations are made for concrete form-fastening systems; rebar cutting, bending, support, tying, and splicing; curing compounds; form release agents; and air-entraining agents. The report provides a brief background and description of the rationale used to choose the components, as well as literature describing the items comprising the kit.

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099052

AD-A058 825 5/1 5/11 5/3

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLTract Level Socioeconomic Data System  
(TRACT) User Manual.

(U)

DESCRIPTIVE NOTE: Special rept.,

AUG 78 36P Webster, Ronald D. ;Moy, A.

B. ;

REPT. NO. CERL-SR-N-48

CONTRACT: WIPR-8952-76-65012

PROJ: 2103

TASK: 9P

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Environmental impact statements.

\*Sociology. \*Economics. Statistical data.

Construction. Army research. Data acquisition.

Urban planning. Land use

IDENTIFIERS: WUCERL21033P02, PE63723F

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The purpose of this study was to develop and document a system for providing sub-county updated estimates for specified socioeconomic statistics to be used in the preparation of environmental impact studies. The data were acquired, a system configuration was designed and implemented, and the system is currently available for DOD usage as a supplement to other Environmental Technical Information System (ETIS) components.

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(Author)

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A058 824 13/13 13/12

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLDevelopment of a Prototype Habitability Data  
Base.

(U)

DESCRIPTIVE NOTE: Special rept.,

AUG 78 73P Davis, Thomas A. ;

REPT. NO. CERL-SR-E-134

PROJ: 4A762719A103

TASK: 01

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Construction. \*Habitability. \*Data bases. \*Military engineering. \*Architecture. Prototypes. Information processing. Information retrieval. Military requirements. Telephone systems. Coding. Space(Room). Health. Safety

IDENTIFIERS: AST03, WU001, PE62719A

(U)

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This report discusses the development, operation, and field testing of a prototype Habitability Data Base (HDB). The HDB is designed to be used for technical guidance in the Military Construction, Army (MCA) facility delivery processes. Occupant activity needs, space requirements, and habitability criteria are excerpted from Army documents and the general literature and coded into the HDB. Research data in support of needs, requirements, and criteria are also excerpted, coded, and entered. Retrieval codes are included to classify types of occupant, occupant needs, occupant activities, facility settings, facility environments, Army facility type, and kinds of statement. Information can also be retrieved using natural language requests. The prototype HDB can be accessed on-line via telephone using any low-speed computer terminal.

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AD-A058 825

UNCLASSIFIED

PAGE

71

AD-A058 824

UNCLASSIFIED

099062

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A058 727 15/5 11/6

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILL

Effects of Corrosion on Military Facilities  
of the Presidio of San Francisco.

(U)

DESCRIPTIVE NOTE: Interim rept.,

AUG 78 32P Hahn, Christopher ;

REPT. NO. CERL-IR-M-254

PROJ: 4A762731AT41

TASK: T7

UNCLASSIFIED REPORT

DESCRIPTORS: \*Military facilities, \*Atmospheric  
corrosion, Ocean environments, Salts,  
Deterioration, Maintenance, Military equipment,  
Coastal regions, Preventive maintenance,  
Environmental engineering

IDENTIFIERS: WU001, PE62731A

(U)  
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The effects of atmospheric corrosion on military facilities at the Presidio of San Francisco induced by airborne salt fall are described. Problem areas include deterioration of galvanized sheet metal, building hardware, refrigeration and air conditioning components, and exterior electrical distribution lines. Recommendations to decrease deterioration rates are made, along with suggested revisions to Technical Manuals 5-551K and 5-680C. An information exchange mechanism between design engineers (Groups of Engineers Districts) and maintenance engineers (Facility Engineers) to improve facility longevity is proposed. Other measures to decrease life-cycle costs, consistent with military priorities, are also recommended. (Author)

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AD-A058 727

UNCLASSIFIED

PAGE

72

AD-A058 570

UNCLASSIFIED

099062

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A058 570 13/13 12/1

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILL

Use of 'Ideal' Ratings as a Standard for  
Evaluating Facilities.

(U)

DESCRIPTIVE NOTE: Special rept.,

AUG 78 39P Veneklasen, Wayne D. ; Brauer,

Roger L. ; Sevy, Bruce ;

REPT. NO. CERL-SR-E-132

PROJ: 4A161102AT23

TASK: 01

UNCLASSIFIED REPORT

DESCRIPTORS: \*Military facilities, \*Dining halls,  
Standards, Ratings, Scaling factors, Semantics,  
Questionnaires, Test and evaluation, Comparison,  
Statistical analysis, Statistical data,  
Reliability

(U)  
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IDENTIFIERS: PE61102A, AST23, WU002

This report presents the results of a study conducted to determine the reliability and validity of using 100-mm bipolar semantic scales to establish an ideal which can be used as a standard for subjectively evaluating facilities. Such an ideal standard would permit all facilities to be evaluated by looking at the difference between the profiles of ratings of existing and ideal facilities. Data were obtained through questionnaires administered to Air Force enlisted personnel, Army officers, and civilian Army office workers. Items rated using the 100-mm scales were existing and ideal dining facilities, existing and ideal Bachelor Officers' Quarters (BOQs), an ideal BOQ entrance, and an ideal wristwatch. Additional data were obtained through interviews. Results indicate that the 100-mm bipolar rating scales could be a viable evaluation tool with one qualification: to provide any meaningful evaluation, the ideal scales must be paired with some dependent measure, such as existing scales. Without such a basis for comparison, there is very little differentiation between ideal ratings of various objects. The data indicate, in fact, that the 100-mm technique itself may influence a person's response to a greater extent than the type of object being rated does. (Author)

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## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A058 569

13/2

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLAIRMDD--A General Program for the Rapid  
Assessment of Airborne Pollutants.

(U)

DESCRIPTIVE NOTE: Interim rept.,

AUG 78 35P

Webster, R. D.; Welsh, R.

L.; Terkonda, P. K.;

REPT. NO. CERL-IR-N-52

PROJ: 4A762720A896

TASK: 01

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Air pollution, Air quality,  
Environmental protection, pollutants, Contaminants,  
Test and evaluation, Atmosphere models,  
Meteorological data, Wind velocity, Airborne,  
Smoke stacks, Hydrocarbons, Particles

(U)

IDENTIFIERS: Program assessment, PE62720A,  
AS896, WU006

(U)

This report describes the initial design of a  
general program for the rapid assessment of airborne  
pollutants (AIRMDD). The system includes  
procedures for (1) long-term and short-term  
evaluations, (2) the determination of point and  
line source emitters, (3) limited mixing  
conditions, and (4) corrections for major  
topographic features. AIRMDD output is presented as  
a table of pollutant concentration estimates for all  
possible weather conditions. The basic model is  
Gaussian plume dispersion of conservative  
pollutants. Its primary application is for sulfur  
oxides, carbon monoxide, and particulates less than  
10 microns in diameter. Models for other types of  
pollutants are still under consideration.

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(Author)

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

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CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLMethodology for Establishing Equipment  
Utilization Standards.

(U)

DESCRIPTIVE NOTE: Interim rept.,

JUL 78 83P

Lindow, Edward S.;

Chovichien, V.;

REPT. NO. CERL-IR-M-247

PROJ: 4A762731AT41

TASK: 09

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Army equipment, \*Mathematical models,  
Utilization, Management, Standards, Economic  
analysis, Costs, Automation, Sensitivity,  
Optimization

(U)

IDENTIFIERS: Model parameters, Ownership costs,  
Operating costs, WU031, ASI41, PE62731A

(U)

This report describes the first phase of a project  
designed to aid Army Facilities Engineers in  
improving equipment management. A rational basis  
for establishing equipment utilization standards was  
developed based on economic analyses of owning and  
operating costs. Mathematical models and automated  
procedures for their application are presented to  
compute minimum and objective utilization standards  
for equipment categories. Sample results are  
provided and the sensitivity of the model parameters  
is evaluated. Recommendations for implementing the  
utilization standards are also given. Results can  
be used in an equipment management program to  
establish uniform criteria for justifying equipment  
ownership and for gauging optimal equipment  
utilization. (Author)

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AD-A058 569

UNCLASSIFIED

PAGE

73

AD-A058 559

UNCLASSIFIED

099062

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A058 545 10/2

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN ILL

Noise levels in U.S. Army Corps of Engineers Powerhouses.

DESCRIPTIVE NOTE: Interim rept.,  
AUG 78 55P Averbuch, A. ; Schomer, P. ;  
REPT. NO. CERL-IR-N-51  
CONTRACT: IAO-WESRF-77-134

(U)

UNCLASSIFIED REPORT

DESCRIPTORS: \*Noise(Sound), \*Power equipment, Level(Quantity), Army equipment, Electric generators, Turbines, Damage, Risk  
IDENTIFIERS: Powerhouses

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Noise level data were gathered for U.S. Army Corps of Engineers (CE) powerhouses including most of the larger powerhouses, in order to determine (1) the nature and extent of excessive noise levels (in excess of hearing conservation criteria) in CE powerhouses and (2) which noise sources were common to most CE powerhouses. The results indicate numerous areas in CE powerhouses where noise levels are excessive. The general noise sources are the turbines, the generators, and various auxiliary pumps, such as fish pumps or air conditioning chiller pumps. This investigation also determined that the 120 Hz pure tone radiated by the main electrical generators at CE powerhouses may constitute more of a hazard than current hearing conservation standards indicate.  
(Author)

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AD-A058 545

UNCLASSIFIED

PAGE

74

AD-A058 344

UNCLASSIFIED

099062

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A058 344 8/11 13/13

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN ILL

Methods for Seismic Strengthening of Buildings.

DESCRIPTIVE NOTE: Interim rept.,  
JUL 78 30P Lybas, John M. ;  
REPT. NO. CERL-IR-M-249  
PROJ: 4A762731AT41  
TASK: 04

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UNCLASSIFIED REPORT

DESCRIPTORS: \*Buildings, \*Resistance, \*Reinforcement(Structures), \*Seismic waves, Strength(General), Methodology, Army research, Epoxy compounds, Concrete  
IDENTIFIERS: Pneumatic application, PE62731A, AST41, WU003

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IAC ACCESSION NUMBER: PL-031212

IAC DOCUMENT TYPE: PLASTIC -HARD COPY--

This report provides guidance for engineers to use in strengthening buildings found to be deficient in seismic resistance. The guidance is intended to serve as the basis for criteria for determining the suitability of specific strengthening schemes for a building and applying specific strengthening methods. Various strengthening methods which have been used in the past are reviewed, with emphasis given to those most applicable to Army needs. Detailed guidelines for the application of two methods--pneumatic application of concrete and use of epoxy compounds--are provided, along with advantages and disadvantages of each. (Author)

(U)

IAC SUBJECT TERMS: P--(U)Adhesives, Repair, Earthquake effects, Buildings, Design criteria, Concrete, Epoxy, Material comparisons, Hardeners, Compression strength, Construction, Polymer concrete, Formulations, Bond strength, Filler effects, Mechanical properties, Bridges, Pneumatic systems, Test methods, Standards, ZZ Unlimited.;



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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A058 129 13/5 13/8 14/2

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILL

Nondestructive Testing for Field Welds:  
Real Time Weld Quality Monitor.

(U)

DESCRIPTIVE NOTE: Interim rept.,

AUG 78 23P Kearney, Frank ;

REPT. NO. CERL-IR-M-251

PROJ: 4A762719AT41

TASK: 04

UNCLASSIFIED REPORT

DESCRIPTORS: \*Welds, \*Nondestructive testing,  
Quality assurance, Portable equipment, Monitoring,  
Defects(Materials), Inspection, Real time,  
Field tests, Arc welding

IDENTIFIERS: AST41, WU009, PE62719A

(U)

IAC ACCESSION NUMBER: NT-016029

IAC DOCUMENT TYPE: NTIAC -MICROFICHE--

This report describes part of a study to develop a  
field portable weld quality monitor. A real time  
weld quality monitor was configured and subjected to  
laboratory and field tests. Based on the tests, it  
was determined that the WQM design is adequate and  
has field applicability. (Author)

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IAC SUBJECT TERMS: N--(U)WELDS, WELD INTEGRITY, QUALITY  
CONTROL, MONITORING, DEFECTS(MATERIALS), TEST EQUIPMENT,  
PORTABLE EQUIPMENT, REAL TIME, FIELD TESTS, PROTOTYPES,  
AUTOMATION, VOLTAGE;

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A057 957 13/13 13/2 8/6

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILL

Material, Design, and Construction Guidelines  
for Vertical Construction in Desert and  
Tropical Regions.

(U)

DESCRIPTIVE NOTE: Final rept.,

JUL 78 109P Kao, Anthony M. ;Krumdieck,

Kevin ;

REPT. NO. CERL-TR-M-239

PROJ: 4A762719AT41

TASK: T5

UNCLASSIFIED REPORT

DESCRIPTORS: \*Shelters, \*Civil engineering,  
\*Tropical regions, \*Deserts, Construction,  
Vertical orientation, Construction materials,  
Environmental engineering, Climate, Erosion,  
Protective treatments, Paints,  
Molds(Organisms)

IDENTIFIERS: PE62719A, AST41, WU004

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This report provides a simple description of the  
basic principles and guidelines that should be  
observed in selecting materials for shelters, in  
designing and planning shelters, and in constructing  
shelters in desert and tropical climates. The  
report identifies preferred construction materials,  
design methods, and construction technique for  
buildings to be located in these two climatic  
regions. The guidelines presented in the report  
are based on actual field experience by the Army,  
Navy, and Air Force as well as research of  
existing literature pertinent to construction in  
desert and tropic regions. This report supercedes  
an earlier report by A. Kao and J. Cook  
entitled 'Preliminary Design and Construction  
Guidelines for Vertical Construction in  
Desert and Tropical Theaters of Operation'  
(CERL Interim Report C-74) published in  
October, 1976. (Author)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 039062

AD-A057 956

9/3

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN ILL

Potential Uses of Fiber Optics in Army Fixed Facilities.

(U)

DESCRIPTIVE NOTE: Special rept.,  
JUL 78 46P McCormack, R. G. ;  
REPT. NO. CERL-SR-W-241  
PROJ: 4A762719AT40  
TASK: A1

UNCLASSIFIED REPORT

DESCRIPTORS: \*Fiber optics transmission lines, \*Data transmission systems, \*Data links, Military facilities, Monitors, Control systems, Multiplexing, Electromagnetic pulses, Radiation hardening, Survival(General), Cost analysis  
IDENTIFIERS: PE62719A, ASI40, WU002

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This report describes the results of a study performed to identify potential uses of fiber-optic data transmission links in Army fixed facilities. The uses identified are related to monitoring and controlling electrical-mechanical functions of the facility, primarily in nuclear Electromagnetic Pulse (EMP) hardened facilities, but also nonhardened facilities. As an example, a comparison is made between fiber-optic and conventional wired data links in an automated monitoring and control system for energy control. Examples are given illustrating general cost comparisons between the fiber optic and conventionally wired systems. Conclusions are that fiber-optic data transmission links may be practical for use in Army fixed facilities where such links are advantageous to circumvent particular threats or in large complex systems where data rates are high. (Author)

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AD-A057 956

UNCLASSIFIED

PAGE

76

AD-A057 936

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A057 936

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CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN ILL

Development of the Economic Impact Forecast System (EIFS)--the Multiplier Aspects.

(U)

DESCRIPTIVE NOTE: Final rept.,  
MAY 78 41P Webster, Ronald D. ; Ortiz, L. ; Mitchell, R. ; Hamilton, W. ;  
REPT. NO. CERL-TR-N-35  
PROJ: 4A762720A896  
TASK: 01

UNCLASSIFIED REPORT

DESCRIPTORS: \*Forecasting, \*Economic analysis, \*Economic models, \*Mathematical prediction, Cost effectiveness, Impact, Cost analysis, Environmental impact statements  
IDENTIFIERS: Economic Impact Forecast System, EIFS(Economic Impact Forecast System), Environmental impact analysis, WU006, AS896, PE62720A

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This report presents refinements to the Economic Impact Forecast System's (EIFS) multiplier calculation that will make it more accurate and user-oriented. Two techniques for meeting National Environmental Policy Act requirements were analyzed, and EIFS was modified according to user needs and cost considerations shown by the analysis. The resultant system compares very favorably with alternative, more expensive, techniques and can provide the Department of the Army with an efficient methodology for regional economic impact assessment. (Author)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A057 435 11/9 13/3

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILL

Damaged Building Repair with Polyurethane  
Foam.

(U)

DESCRIPTIVE NOTE: Final rept.,

JUN 78 28P Smith, Alvin;

REPT. NO. CERL-TR-M-245

PROJ: 4A762619AT41

TASK: 08

UNCLASSIFIED REPORT

DESCRIPTORS: \*Polyurethane resins, \*Foam,  
\*Construction materials, Buildings, Repair,  
Portable shelters, Theater level operations,  
Combat areas, Damage, Maintenance personnel,  
Military personnel, Adverse conditions, Weather,  
Sprayers, Substrates

IDENTIFIERS: AST41, WU002, PE62619A

(U)  
(U)

IAC ACCESSION NUMBER: PL-029998

IAC DOCUMENT TYPE: PLASTIC -HARD COPY--

The report evaluates and describes the use of  
foamed polyurethane plastic as a repair material in  
making expedient shelters from combat-damaged  
buildings in the theater of operations. The  
material was evaluated from the standpoint of use of  
troop labor, required substrate material, and the  
effect of adverse weather conditions. This study  
led to the following conclusions. (1) Spray-  
applied polyurethane foam is an expedient means of  
repairing damaged buildings. The buildings must be  
structurally sound, since the foam will contribute  
minimally to the strength of the building. (2)  
The foam will adhere to almost any building  
material and a variety of materials may be used to  
apply the foam to the opening. Plywood scraps,  
cloth, cardboard paper, and wire mesh were shown to  
satisfactory substrate materials. (3) Troops  
with no prior experience in using foam equipment can  
become proficient foam sprayers with a minimum of  
instruction. (4) The foam can form satisfactory  
patches under adverse weather conditions.  
(Author)

(U)

IAC SUBJECT TERMS: P--(U)Urethanes, Repair,  
Buildings, Spray applications, Military applications,  
AD-A057 435

UNCLASSIFIED

PAGE

77

AD-A057 366

UNCLASSIFIED

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UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A057 366 13/2 6/6

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILL

Management of Reservoir Cleaning and Cleaning  
Debris.

(U)

DESCRIPTIVE NOTE: Final rept.,

JUL 78 314P Kloster, Sharon E.; Mikucki,

W. J.;

REPT. NO. CERL-TR-N-50

UNCLASSIFIED REPORT

DESCRIPTORS: \*Waste management, Wood, Debris,  
Cleaning, Removal, Trees, Cutting, Forestry,  
Waste disposal, Environmental management, Dams,  
Army Corps of Engineers  
IDENTIFIERS: Logging(Forestry), Environmental  
impact, LPN-CWIS-31055

(U)

(U)

This report provides information on several methods  
or combinations of methods to dispose of wood debris  
from cleaning and cleaning operations. The basic  
alternatives include but are not limited to selling,  
using, burying, and burning. According to the  
results of the study, there is no universal disposal  
method that can be used economically at all dam sites  
to dispose of wood debris and be environmentally  
compatible. Each site must be considered  
individually, using social, economic, and physical  
factors to determine the most appropriate disposal  
method for the location. Site-specific data  
obtained from interviews, site visits,  
questionnaires, and literature surveys were used to  
develop lists of factors deemed essential for  
evaluating methods to dispose of cleaning and  
cleaning debris at dam projects. Corps of  
Engineers personnel can use these lists to evaluate  
their individual situations. (Author)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A057 226

13/2

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILL

Compendium of Administrators of Land Use and  
Related Programs.

(U)

DESCRIPTIVE NOTE: Final rept.,

JUL 78 205P Lacey, R. M. ; Balbach, H.

E. ; Fittipaldi, J. J. ;

REPT. NO. CERL-IR-N-40

PROJ: 4A762720A896

TASK: 04

UNCLASSIFIED REPORT

DESCRIPTORS: \*Land use, United States,  
Administrative personnel, Land areas,  
Environmental protection, Environmental management,  
Army planning, Natural resources, Environmental  
impact statements, Water resources, Rural areas,  
Flood plains, Air quality

(U)

IDENTIFIERS: Compendium, PE62720A, A5896,  
WU001

(U)

This report is primarily a compendium of the names, addresses, and telephone numbers of Federal agency and State Government officials having control over, or input in, land use and plans and programs related to land use. Discussion of inconsistencies between Army actions and such land use plans, policies, and controls is returned by AR 200-1 (para. 2-12b) in environmental impact assessments and statements. Such discussion has been made very difficult by the lack of readily available information about what information these plans contain. Furthermore, many of the policies are relatively informal, or subject to subregional interpretation by regulatory officials. This compendium provides for the Army preparer of environmental impact a summary of statements a point of contact who can answer questions about applicable policies at an early stage of the document preparation process. Nineteen categories of state-level programs are included, with one or more points of contact suggested for each state for each applicable type of program. Twenty-eight Federal government agencies are identified whose programs may require coordination with Army activities. A

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AD-A057 226

UNCLASSIFIED

PAGE

78

AD-A057 225

UNCLASSIFIED

099062

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A057 225

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CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILL

Equivalent Viscous Damping of Elasto-  
Plastic Systems under Sinusoidal Loading.

(U)

DESCRIPTIVE NOTE: Special rept.,

JUL 78 27P Mennitt, R. G. ;

REPT. NO. CERL-SR-M-242

PROJ: 4A762731AT41

TASK: T4

UNCLASSIFIED REPORT

DESCRIPTORS: \*Structural response, \*Vibration,  
\*Earthquake engineering, Loads (Forces), Sine  
waves, Resonant frequency, Damping, Elastic  
properties, Plastic properties, Viscosity,  
Stiffening, Structural response, Algorithms

(U)

IDENTIFIERS: Structural design, PE62731A,  
AST41, WU007

(U)

This report addresses the possibility of establishing a simple algorithm applicable to structural design that would provide information on a nonlinear structural system based on information on a linear damped structural system. Two variables were considered -- geometrical stiffness and resonant amplitude. Although the geometrical stiffness approach was determined more adequate in accounting for the frequency shift in a nonlinear system, the maximum displacement values it displayed throughout the frequency range were unconservative. The resonant amplitude approach indicated more conservative values in an intermediate range of frequencies, but its lower range values, where nonlinear systems demonstrate resonance, were also unconservative. This report determines that the application of a weighted average of linear viscous damped system displacement to define nonlinear system displacement does not provide a satisfactory method of equivalencing systems by either the resonant amplitude or geometrical stiffness approach.

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(Author)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099032

AD-A057 148 13/2 12/1

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLDevelopment of a Pavement Condition Index for  
Roads and Streets.

(U)

DESCRIPTIVE NOTE: Interim rept.,

MAY 78 112P Shahin, Mohamed Y. ;Darter,

Michael I. ;Kohn,Starr D. ;

REPT. NO. CERL-IR-V-232

UNCLASSIFIED REPORT

DESCRIPTORS: \*Pavements. \*Structural properties,  
\*Indexes(Ratios), Surface roughness,  
Maintenance management, Repair. Concrete,  
Asphalt, Mathematical models, Inspection, Field  
tests

(U)

This report describes the preliminary development  
of a pavement condition index (PCI) for rating  
jointed concrete and asphalt-surfaced roads and  
streets. The PCI, which measures pavement  
structural integrity and surface operational  
conditions, is calculated by measuring pavement  
distress types, severities, and densities obtained  
during pavement inspection. The PCI procedure  
presented in this report will be further field-tested  
and verified. (Author)

(U)

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A057 147 5/1 9/2 15/5

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLReal Estate Organization Analysis Using the  
Real Estate Model of Activity Performance  
(REMAP) Evaluation Procedures.

(U)

DESCRIPTIVE NOTE: Final rept.,

JUL 78 229P Altheide, Carl P. ;

REPT. NO. CERL-TR-p-90

UNCLASSIFIED REPORT

DESCRIPTORS: \*Management engineering, \*Management  
information systems, \*Military facilities, Systems  
analysis, Military organizations, Mathematical  
models, Computer programs, Management planning and  
control, Manpower utilization, Allocations,  
Geographical distribution, Army Corps of  
Engineers, Division level organizations, Cost  
analysis

(U)

The U.S. Army Construction Engineering  
Research Laboratory (CERL) has developed a  
model for analyzing alternative organizational  
locations of performance centers such as Division,  
District, field, or project offices. The model,  
called the Real Estate Model of Activity  
Performance (REMAP), uses computer-aided  
techniques to generate the annual workload of each  
performance center based on a selective assignment of  
real estate activity locations to that center and to  
create visual displays of those assignments in the  
form of maps. This report describes the REMAP  
methodology and the results of specific applications  
of REMAP in the evaluation of eight alternative  
organizational assignments. The evaluations  
compare relative differences in dollar and manpower  
requirements for the performance of real estate  
activities by various performance centers. These  
analyses were based on FY75 data for the real  
estate activities of Project Planning,  
Acquisition (Pre- and Post-Condensation),  
Inleasing, Outgranting, Disposals, Compliance  
and Utilization Inspections, and Relocation  
Assistance. (Author)

(U)

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099052

AD-A057 143 5/1 9/2 15/5

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLReal Estate Model of Activity Performance  
(REMAP) User's Manual.

(U)

DESCRIPTIVE NOTE: Final rept.,

JUL 78 209P Altheide, Carl P. ;

REPT. NO. CERL-TR-P-89

UNCLASSIFIED REPORT

DESCRIPTORS: \*Management engineering. \*Management information systems. \*Military facilities. Mathematical models. Programming manuals. Management planning and control. Manpower utilization. Allocations. Geographical distribution. Army Corps of Engineers. Division level organizations. Computer programs. Cost analysis. Computer graphics. Military organizations

(U)

The U.S. Army Construction Engineering Research Laboratory has developed a management model for analyzing alternative organizational locations of performance centers as Division, District, Field, or Project Offices for the Office of the Chief of Engineers, Directorate of Real Estate. This report describes the evaluation procedures and provides instructions for using the computer programs and performing the manual calculations required in the model, called the Real Estate Model of Activity Performance (REMAP). The procedures involve computer and manual techniques for conducting comparative analyses of real estate activity assignments which are based both on the locations - actual or proposed - of real estate activities and offices throughout CONUS. The analyses compare relative differences in dollar and manpower requirements for the performance and administration of real estate activities by various performance centers. REMAP uses computer-aided techniques to generate the annual workload of each performance center based on a selective assignment of activity locations to that center and to create visual displays of those assignments in the form of maps. (Author)

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AD-A057 146

UNCLASSIFIED

PAGE

80

AD-A056 997

UNCLASSIFIED

099062

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A056 997 15/5 6/6

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLComputer-Aided Environmental Impact  
Analysis for Industrial, Procurement, and  
Research, Development, Test, and Evaluation  
Activities: User Manual.

(U)

DESCRIPTIVE NOTE: Final rept.,

JUN 78 176P Thomas, Susan E. ; Mitchell,

Ralph A. ; Riggins, Robert E. ; Fittipaldi, John

J. ; Novak, Edward W. ;

REPT. NO. CERL-TR-N-43

PROJ. 4A762720A896

TASK: 01

UNCLASSIFIED REPORT

DESCRIPTORS: \*Army research. \*Computer aided diagnosis. \*Environmental impact statements. \*Manuals. Computers. Computer programs. Army procurement. Test and evaluation. Organizations. Army personnel. Research management. Industries

(U)

(U)

IDENTIFIERS: PE62720A, WU001

This manual and the associated information provided by the Environmental Impact Computer System (EICS) were prepared for proponents of Army industrial, procurement, and research, development, test, and evaluation activities to prepare adequate, comprehensive, and interdisciplinary environmental impact assessments and statements for their ongoing and proposed projects and programs. These procedures will enable the Army to meet the requirements of the National Environmental Policy Act (NEPA) and subsequent Army Regulations (AR 200-1). This manual discusses the philosophy behind the environmental impact assessment process; presents an overview of the Environmental Technical Information System (ETIS); discusses the criteria and general approach for using the EICS; defines the EICS components; provides instructions for accessing the EICS functions listed above; and provides detailed procedures necessary to use the EICS output in the environmental impact assessment process and in preparing a formal Environmental Impact

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CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN IL F/G 13/2  
USACERL REPORT BIBLIOGRAPHY.(U)

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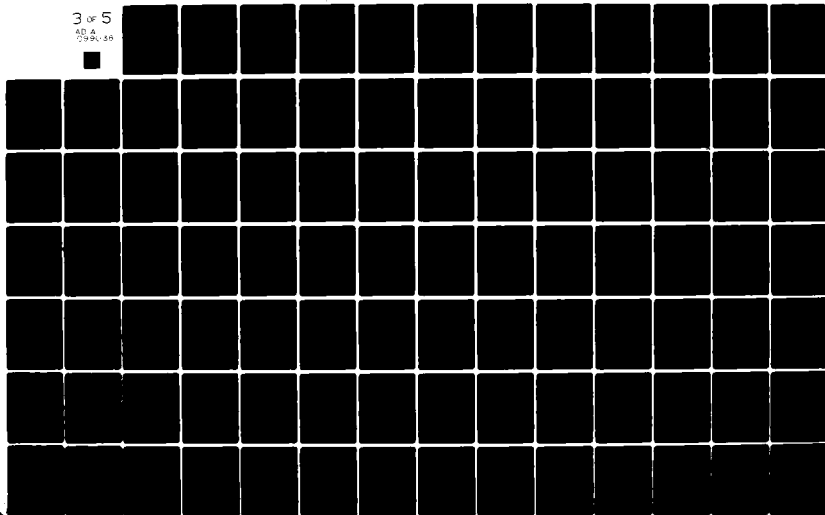
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3 of 5

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A056 831 13/2

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLDevelopment of Vault Toilet Waste Treatment  
Systems. (U)DESCRIPTIVE NOTE: Interim rept.,  
JUN 78 31p Kraybill, D. D.; Struss, S.R. ;  
REPT. NO. CERL-IR-N-47

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Wastes (Sanitary engineering),  
\*Waste treatment, Louisiana, Construction,  
Mixers (Mechanical), Aeration, Test and  
evaluationIDENTIFIERS: Vault toilet waste treatment systems,  
Latrines, Vaults, Fort Polk (U)

This interim report describes the study, design, and installation of systems for the in-situ treatment of vault toilet (latrine) wastes. The study investigates properties of vault waste and various waste treatment alternatives. It then selects the most practical alternatives for design and construction. The report then describes design considerations and gives two general overviews of the final designs. The treatment systems consist of one mechanical mixer and two compressor-driven bubble aerators, all of which are installed in concrete lined vaults at Fort Polk, LA. Finally, it details the future testing programs for these devices. (Author) (U)

AD-A056 831

UNCLASSIFIED

PAGE

81

AD-A056 627

UNCLASSIFIED

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## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A056 627 13/13 12/1

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLDynamic Response of Reinforced Concrete  
Structures. (U)DESCRIPTIVE NOTE: Special rept.,  
JUL 78 28p Sharma, Sushil M. ;  
REPT. NO. CERL-SR-M-243  
PROJ: 4A161102AT23  
TASK: 02

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Reinforced concrete, \*Structural  
engineering, \*Earthquake engineering, \*Dynamic  
response, Finite element analysis, Damping,  
Coefficients, Structural response, Computerized  
simulationIDENTIFIERS: Inelastic deformation, DRAIN-2D  
computer program, WU004, AST23, PEB1102A (U)

Beam-column and plane stress finite elements were described for an inelastic analysis of plane RC structures under earthquake-type ground motion. Material nonlinearities in the beam-column finite element were taken into account by considering cyclic inelastic deformations throughout the element. The plane stress finite element allowed for cracking of the element in tension. These elements were incorporated in the DRAIN-2D computer program, which was determined to be flexible and efficient. Preliminary results for single structures showed that, with the addition of new finite elements described in this report, this program would be very useful for practical investigations of RC structures. (Author) (U)

AD-A056 831

UNCLASSIFIED

PAGE

81

AD-A056 627

UNCLASSIFIED

099062



UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A056 620 13/13 13/1

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLInvestigation of Reflective Solar Control  
Films for Windows.

(U)

DESCRIPTIVE NOTE: Special rept., Kanarowski, Stanley M. ;  
JUN 78 85P  
REPT. NO. CERL-SR-W-240

UNCLASSIFIED REPORT

DESCRIPTORS: \*Buildings, \*Windows, \*Coatings,  
Reflection, Solar radiation, Cooling, Energy  
conservation, Life cycle costs, Savings, Thin  
films, Vapor deposition, Glass, Cost analysis,  
Computerized simulation

(U)

This report presents the results of a study of flexible solar control film applied on windows to eliminate or reduce glare and solar heat, and to conserve energy. Four manufacturers' films were investigated by surveying users in 15 areas of the United States, visiting selected installations, and conducting a laboratory evaluation of film/glass samples. In addition, solar radiation heat balance profiles were developed to indicate the solar heat gain through clear glass with and without solar film. A computer heating and cooling load and systems simulation program was run on a typical 72-man barracks module. Annual heating and cooling loads and costs and the related life-cycle cost (LCC) for the barracks module were computed for several types of window glass, solar film on clear glass, and interior shading.

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AD-A056 620

UNCLASSIFIED

PAGE

82

AD-A056 575

UNCLASSIFIED

099062

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A056 575 1/5

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILL

Development of a Pavement Maintenance  
Management System. Volume III. Maintenance  
and Repair Guidelines for Airfield  
Pavements.

(U)

DESCRIPTIVE NOTE: Final rept. 1 Oct 76-30 Sep 77,  
SEP 77 122P  
Michael I. ; Kohn, Starr D. ;  
REPT. NO. CERL-TR-C-76-VOL-3

PROJ: 2104

TASK: 3M

MONITOR: CEEDO TR-77-44-VOL-3

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: See also Volume 1, AD-A048  
884.

DESCRIPTORS: \*Pavements, \*Maintenance management,  
\*Repair, Computer programs, Airports, Runways,  
Skidding, Loads (Forces), Roughness,  
Deterioration, Rates, Economic analysis,  
Concrete, Asphalt

(U)

IDENTIFIERS: LPN-CEEDO-77-014,

(U)

WUCEED021043M01, PE63723F

This report describes the development of guidelines for determination of maintenance and repair (M and R) needs of airfield pavements. The guidelines are based on the pavement condition index (PCI) and other condition indicators, including rate of deterioration, cause of deterioration, load carry capacity, skid resistance/hydroplaning, surface roughness, and extent of previous M and R. The M and R methods were divided into three general categories: routine, major, and overall. The mean pavement PCI was found to relate strongly to M and R needs represented by these three M and R categories. M and R zones for use in selecting the appropriate M and R category were established based on the mean pavement PCI. Other condition indicators are used to further aid in the selection of feasible M and R alternatives. Recommended M and R methods for the different distress types and severity levels were developed. Economic analysis procedures were developed for comparing M

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## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A056 496 11/4 11/2 20/11

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLSteel Fibers as Web Reinforcement in  
Reinforced Concrete.

(U)

JUN 78 15P Williamson, Gilbert R. :

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Reinforced concrete. \*Steel. \*Metal  
fibers. \*Beams(Structural).  
Strength(Mechanics). Shear strength. Shear  
properties. Structural properties

(U)

The objective of this investigation was to determine the feasibility of replacing shear reinforcement (stirrups) with randomly distributed steel fibers for the prevention of diagonal tension (shear) failure in full-scale conventionally reinforced concrete beams. The following conclusions are based upon the use of steel fibers with deformed ends (Dramix) to replace stirrups: (1) Steel fibers can be used to replace stirrups in beams with no reduction in the ultimate design moment capacity; (2) Steel fibers increase the shear strength of concrete beams sufficiently to prevent catastrophic diagonal tension failure, while forcing the beam to fail in flexure; (3) ACI Code procedures can be used without modification to design reinforced concrete beams that contain steel fibers as shear reinforcement; (4) Low volume percentages of steel fibers have no effect upon the stiffness of full-scale beams; and (5) Steel fibers present a potentially more economic alternative to the use of stirrups in reinforced concrete design.

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AD-A056 496

UNCLASSIFIED

PAGE

83

AD-A056 463

UNCLASSIFIED

099062

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A056 463 5/5 5/10

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLEstablishing Habitability Factors for the  
Design of Office Environments.

(U)

JUN 78 14P Lozar, Charles C. :

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Human factors engineering.  
\*Habitability. \*Office buildings. Morale.  
Experimental design. Environmental psychologists.  
Methodology. Technology transfer. Colors  
IDENTIFIERS: Floor plans

(U)  
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The purpose of this presentation is to document an overall methodology which incorporates experimental design considerations from the social sciences, specifically environmental psychology, and transfers that technology to planning and design application to improve habitability in office environments. The importance of this application is that the habitability factors which are involved in most office environments do not have a firm basis in basic research, and are not well documented in terms of guidance information for designers. This paper will present a discussion of a means of derivation for habitability factors in a particular context of office environments. However, the same methodology will be shown to be applicable to others types of environments, with the process being beneficial to the generation of new basic research, application of new concepts, and continuing accumulation of new knowledge in the area of habitability factors for any environment.

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## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A056 452 13/1

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLA Comparison of the Actual and Predicted  
Performance of a Solar Assisted Space  
Heating System,

(U)

JUN 78 13P Joncich, David M. ;

UNCLASSIFIED REPORT

DESCRIPTORS: \*Solar heating, \*Solar energy,  
Feasibility studies, Performance(Engineering),  
Housing(Dwellings), Buildings

(U)

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A056 424 20/3 12/1

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLAnalysis of a Nonlinear Electromagnetic Field  
Penetration Problem,

(U)

JUN 78 14P Croisant, William J. ;  
Nielsen, Paul ;

UNCLASSIFIED REPORT

DESCRIPTORS: \*Electrical conductivity,  
\*Electromagnetic fields, \*Mathematical analysis,  
Electromagnetic shielding, Magnetic fields,  
Penetration, Time dependence, Computations,  
Permeability, Ferromagnetic materials, Isotropism,  
Homogeneity, Demagnetization

(U)

This study examines the time-dependent penetration of a step increase in magnetic field strength  $H$  into a semi-infinite conducting medium having a permeability which varies with magnetic field strength. The medium is considered to be isotropic, homogeneous, and initially demagnetized. The medium at any point is presumed to follow its initial magnetization curve for which a simple approximation is assumed. The analytical approach consists of mathematical analysis supplemented with numerical calculations. The problem can be simplified from one involving a second order nonlinear partial differential equation to one involving a second order nonlinear ordinary differential equation utilizing a simple transformation of variables. Although a formal parametric representation of the solution of the second order differential equation is considered, a simple closed form solution in terms of elementary functions does not seem to exist. Hence several analytical techniques, as well as numerical calculations, have been employed to deduce properties of the solution.

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A056 406 15/7 6/6

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLField Use of the Environmental Impact  
Computer System,JUN 78 13P Balbach, Harold E. ; Novak,  
Edward W. ;

UNCLASSIFIED REPORT

DESCRIPTORS: \*Environmental impact statements, \*Army  
planning, \*Computer applications, Military  
requirements, Field conditions, Military  
applications, Ecology  
IDENTIFIERS: Lessons learned(U)  
(U)

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A056 300 13/11

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLSchedule 40 Polyvinyl Chloride Pipe for  
Army Theater of Operations Construction.DESCRIPTIVE NOTE: Final rept.,  
JUN 78 14P Smith, Alvin ; Morse, David  
C. ;REPT. NO. CERL-TR-M-246  
PROJ: 4A763734DT08  
TASK: T6

UNCLASSIFIED REPORT

DESCRIPTORS: \*Pipes, \*Polyvinyl chloride, Army  
operations, Construction, Costs, Comparison  
IDENTIFIERS: AST08, WU003, PE63734A(U)  
(U)

IAC ACCESSION NUMBER: PL-029854

IAC DOCUMENT TYPE: PLASTIC -HARD COPY--

This report presents the results of a study conducted to evaluate the potential of plastic pipe for use in Army Theater of Operations construction. The study compared the cost, weight, and labor requirements of the metallic and bituminous fiber piping systems specified in Technical Manual 5-303 with those of a plastic piping system. Schedule 40 polyvinyl chloride (PVC) pipe, which was found adequate for all cold water distribution and plumbing as well as drain-waste-vent and sewer systems, was selected for the comparison. It was determined that substitution of PVC for metallic piping would result in cost, weight, and labor reductions of approximately 43, 76, and 57 percent, respectively. Although PVC does not offer such advantages over the bituminous fiber piping, the latter had demonstrated poor performance and is no longer readily available. Compared to the total conventional AFCS piping system (metallic and bituminous fiber), the PVC system offers estimated weight savings of 33 percent and labor savings of 5 percent, with a cost increase of 15 percent. An additional advantage to the PVC system is that specification of a single type and wall thickness of pipe simplifies procurement and inventory procedures. It is recommended that TM 5-303 be revised to allow substitution of Schedule

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AD-A056 406

UNCLASSIFIED

PAGE

85

AD-A056 300

UNCLASSIFIED

099062

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A056 226 13/1 9/2

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILL

The Building Loads Analysis and System  
Thermodynamics Program (BLAST). Release  
Number 1.

(U)

DESCRIPTIVE NOTE: Software,

JUN 78 1V Hittle, Douglas C.; Lawrie,

Linda;

MONITOR: DOD/DF 78-008

UNCLASSIFIED REPORT

Available from NTIS, Springfield, VA 22161. Mag  
Tape \$350.00 Source tape is in BCD character set.  
Tape(s) can be prepared in most standard 7 or 9 track  
recording modes for one-half inch tape. Identify  
recording mode desired by specifying character set, tract,  
density and parity. Price includes documentations,  
AD-A048 734 and AD-A048 982.

DESCRIPTORS: \*Energy consumption, \*Buildings,  
\*Computer programs, Magnetic tape, Subroutines,  
FORTRAN, Flow charting, Algorithms, Heating  
plants, Centralized, Air conditioning equipment,  
Ventilation, Thermal insulation, Meteorological  
data, Energy consumption, Computer program  
documentation

(U)

IDENTIFIERS: Software(NTIS), \*Blast computer  
program, CDC 6400 computers

(U)

The Building Loads Analysis and System  
Thermodynamics (BLAST) program is a sophisticated  
set of subprograms for predicting energy consumption  
in buildings. The four major subprograms are:  
(1) the input processor, which parses the high-  
level input language and sets up the building/  
systems/plant descriptions; (2) the building  
loads subprogram, which computes the hourly space  
load in a building or zone based on the user's  
description of the building/zone and hourly weather  
data; (3) the air distribution system simulation  
subprogram, which calculates the coil energy demands,  
fan power, etc., based on the user's description of  
the air handling system and the hourly space load  
data calculated by the previous subprogram; and  
(4) the central energy plant simulation  
subprogram, which calculates energy consumption of a  
central/solar/total energy plant based on the user's (U)

AD-A056 226

UNCLASSIFIED

PAGE

86

AD-A056 218

UNCLASSIFIED

099062

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A056 218 9/5 20/14

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILL

Development of Conduit Design Analytical  
Procedure.

(U)

DESCRIPTIVE NOTE: Interim rept.,

JUN 78 149p Croissant, William; Nielsen,

Paul; Sieber, David; McCormack, Raymond G.;

REPT. NO. CERL-IR-M-234

PROJ: 4A762719AT40

TASK: A1

UNCLASSIFIED REPORT

DESCRIPTORS: \*Circuits, \*Electromagnetic shielding,  
\*Conduits, Experimental design, Test methods,  
Mathematical models, Electromagnetic pulses,  
Electromagnetic fields, Leakage (Electrical),  
Hardened structures, Military facilities,  
Penetration, Defects (Materials), Time domain,  
Frequency

(U)

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IDENTIFIERS: AST40, PE62719A, WU020

This report presents proposed models for analysis  
of the electromagnetic pulse (EMP) signals in  
conduit shielded circuits. The models are intended  
for use in an analytical procedure for evaluating  
conduit system designs currently being developed.  
The development of preliminary models for  
calculating (1) EMP penetration in solid  
conduit, (2) EMP leakage through defects, and  
(3) the effect of circuit impedances on EMP  
induced signals is presented. EMP properties and  
conduit physical properties important to the conduits  
shielding characteristics are examined. Both time  
domain and frequency domain analyses are presented.  
(Author)

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## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A056 196 10/1 13/2

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN ILL

Energy Recovery from Solid Waste in the Charleston, SC, SMSA.

(U)

DESCRIPTIVE NOTE: Final rept.,

JUN 78 73P Collishaw, A. N.; Hathaway, S. A.;

REPT. NO: CERL-TR-E-131

CONTRACT: N62467-77-MP-00005

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Energy, \*Solid wastes, \*Energy conversion, Feasibility studies, Recovery, Costs, Resources

IDENTIFIERS: Fuel credits

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This study investigated the technical and economic feasibility of establishing a single, solid waste resource-recovery facility in the Charleston, SC, Standard Metropolitan Statistical Area (SMSA). Energy was the primary resource to be recovered. The 29,700 tons/year of solid waste generated by Federal facilities in the SMSA are presently being disposed of in landfills operated by county governments. This study compared the cost of continuing solid waste disposal by landfill to the estimated cost of establishing (1) a Federal resource-recovery facility or (2) a regional resource-recovery facility. When a Federal resource-recovery facility which used solid waste generated by Federal facilities only was considered, it was determined that energy could be recovered at a rate of 19.0 v 10 to the fifth power Btu/year. The capital investment was estimated to be \$8.5 million in FY82 dollars and the Savings to Investment Ratio (SIR) was estimated at 0.8/1.0, with a payback period of more than 25 years. Because the SIR was less than 1.0, this study concluded that a Federal resource-recovery facility was not economical and should not be pursued. (Author)

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AD-A056 196

UNCLASSIFIED

PAGE

87

AD-A056 089

UNCLASSIFIED

099062

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A056 089 9/2

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN ILL

Automated Data Processing System (ADPS): Documentation Standards.

(U)

DESCRIPTIVE NOTE: Special rept.,

JUN 78 50P Lapp, Roger L.;

REPT. NO: CERL-SR-P-92

PROJ: 4A762731AT41

TASK: T1

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Computer program documentation, Data processing, Standards, Computer aided design, Army Corps of engineers, Data management

(U)

IDENTIFIERS: CAEADS computer program, WU020, AST41, PE62731A

(U)

This report presents documentation standards recommendations for the U.S. Army Corps of Engineers Computer Aided Engineering and Architectural Design System (CAEADS). These recommendations, which will be applicable throughout the system's life cycle, emphasize kinds of documents and their general content. It is recommended that governmental publications DOD 4120.17M, AR 18-1, TB 18-122, and CSCM 18-1 (Training Package) be used as an initial foundation for approximately two dozen document types. The recommended standards apply both to CAEADS as a system and to each CAEADS subsystem. These standards govern both technical and management documents. Technical documents include both the more commonly cited documents of high utility and the less frequently mentioned (but vital) documents of limited use. Management documents encompass both resource management (time, funds, manpower, materiel) and general administration.

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## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A055 874 13/2 5/1 5/3

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLDeficiency Judgments in Real Estate Eminent  
Domain Proceedings.

(U)

DESCRIPTIVE NOTE: Special rept.,

JUN 78 40P Donnan, Kathleen K. ;

REPT. NO. CERL-SP-P-91

UNCLASSIFIED REPORT

DESCRIPTORS: \*Land use, \*Civil engineering, Acquisition, Army procurement, Decision making, Deficiencies, Cost analysis, Minerals, Industries, Mathematical prediction, Army Corps of Engineers, Resource management, Agriculture, Flooding

This study reviewed the Corps of Engineers' experience with deficiency judgments from land acquisition for civil works projects. Historical data were sampled and analyzed in an attempt to develop a more accurate means of assessing land acquisition costs. It was concluded that three factors generally contribute to the best predictions of total deposits plus deficiencies for a project: (1) the sum of deposits, (2) the fraction of land in Government interests associated with mineral rights and temporary flowage easements, and (3) the fraction of land in the industrial land use category. These factors were developed into a predictive equation. Projects for which settlement costs were severely underestimated by the equation were analyzed to identify circumstances which might lead to unexpectedly high settlements. Such circumstances include: (1) how many small settlements, each relatively large compared to even smaller deposits, and (2) individual high deficiencies stemming from disputes over either equipment evaluation or the effects of easements on an agricultural or industrial operation. (Author)

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AD-A055 874

UNCLASSIFIED

PAGE

88

AD-A055 565

UNCLASSIFIED

099062

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A055 565 13/2 5/2 9/2

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLPollution Abatement Management System--  
Concept Definition.

(U)

DESCRIPTIVE NOTE: Final rept.,

MAY 78 69P Webster, Ronald D. ; Smith,

E. D. ; Kothandaraman, V. ;

REPT. NO. CERL-TR-N-42

PROJ: 4A762620A896

TASK: T2

UNCLASSIFIED REPORT

DESCRIPTORS: \*Pollution abatement, \*Management planning and control, \*Computer applications, Military facilities, Army operations, Management information systems, Solid wastes, Liquid wastes, Air pollution, Legislation, State government, Federal law, Data bases, Environmental protection, Standards, Military requirements, Cost effectiveness

IDENTIFIERS: PEG2620A, AS896, WU008

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Regulatory and legislative requirements of Federal and state pollution control acts such as Public Law 92-500, the Clean Air Act, and the Solid Waste Management Act require Army installations to constrain the effluents of their operations within prescribed limits of quality. The Pollution Abatement Management System (PAMS) will help the facility engineer, Army Major Commands (MACOMs), and headquarters environmental offices implement these requirements by providing manual and computer-assisted procedures to (1) determine the most cost-effective, site applicable, energy-conservative solutions for bringing air, water, and solid waste emissions from Army operations into compliance with Federal, state, and Army standards using existing technology and commercial developments wherever possible; (2) monitor the scheduled progress in meeting those prescribed Federal, state, and Army standards; and (3) identify priority ranking of environmental pollution problems within the Department of the Army. This report formalizes the overall concept development of PAMS and the

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A055 561 13/13 13/2 15/3

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLThe Rational Threshold Value (RTV)  
Technique for the Evaluation of Regional  
Economic Impacts.

(U)

DESCRIPTIVE NOTE: Final technical rept.,  
JUN 78 65P Webster, Ronald Dwight ;

Shannon, E. ;

REPT. NO. CERL-TR-N-49

PROJ: 4A762720A896

TASK: 01

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Environmental impact statements,  
\*Military facilities, Economic analysis,  
Sociology, Case studies, Army planning, Decision  
making, Technology transfer, Employment, Income,  
Population, Regions, Computer programs, Economic  
models

IDENTIFIERS: PE62720A, AS896, WU002

This report presents the results of a study undertaken to develop a practical technique for evaluating the 'significance' of predicted socioeconomic impacts. A review of important socioeconomic elements was undertaken, a list of indicator parameters was developed, and a technique for evaluating temporal change for establishing 'significance' of the elements was developed. The result was the rational threshold value (RTV) technique, which can easily be used by DA planners and decision-makers involved in producing Environmental Impact Statements (EISs) and Environmental Impact Assessments (EIAs). Several hypothetical case studies were investigated to ascertain the practicality and usefulness of the technique. Results of these studies indicate that the RTV technique can be used as a screening device to establish the significance of economic and related social impacts resulting from Army military activities. (Author)

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AD-A055 561

UNCLASSIFIED

PAGE

89

AD-A055 560

UNCLASSIFIED

099062

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A055 560 7/1 13/1

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLApplication of Modern Coal Technologies to  
Military Facilities. Volume I. Summary of  
findings.

(U)

DESCRIPTIVE NOTE: Interim rept.,

MAY 78 46P Honig, Ernest M., Jr. ;

Hathaway, S. A. ;

REPT. NO. CERL-IR-E-130-VOL-1

PROJ: 4A762731AT41

TASK: 06

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Coal, \*Military facilities, Energy  
management, Combustion, Fluidized bed processes,  
Military planning, Feasibility studies, Costs,  
Army, Boilers, Conversion, Heating plants,  
Electric power plants

(U)

IDENTIFIERS: \*Coal gasification, \*Coal  
liquefaction, Direct combustion, PE62731A,  
AST41, WU016

(U)

IAC ACCESSION NUMBER: PL-901181

IAC DOCUMENT TYPE: PLASTIC -HARD COPY--

Current and emerging coal technologies are described and evaluated for possible current, near-term (1982), and long-term (1987) application to military facilities. Technologies considered are: conventional and advanced direct combustion of coal, coal gasification, and coal liquefaction. The impacts of applying the principal candidate processes of each of three categories are discussed. It was concluded that there are no new advances in conventional direct combustion of coal and that current technology can be applied now and in the near-term. Fluidized-bed combustion may be a prospect for direct combustion by 1982. Current- to near-term coal gasification prospects are the Lurgi and Koppers-Totzek low-Btu processes and the Lurgi high-Btu process. A long-term coal gasification prospect is the CO<sub>2</sub>-Acceptor high-Btu process. No coal liquefaction processes currently appear to be economically feasible for military-scale applications. Existing natural gas- and oil-fired boilers can be changed to fire low-

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UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A055 520 11/6 20/11

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN ILL

Fracture Characteristics of ASTM A-607  
Pipe-Line Steel, ASTM A-516 Structural  
Steel, and ASTM B-209, Aluminum Alloys 5083  
and 6061.

DESCRIPTIVE NOTE: Final rept.,  
MAY 78 46P Scott, J. K. ;  
REPT. NO. CERL-TR-M-238  
PROJ: 4A761102AT23  
TASK: A2

UNCLASSIFIED REPORT

DESCRIPTORS: \*Steel, \*Aluminum alloys,  
\*Fracture(Mechanics), Pipelines, Structural  
steel, Hydrogen embrittlement, Tensile strength,  
Fatigue(Mechanics), Impact strength  
IDENTIFIERS: Steel A-607, Steel A-516,  
Aluminum alloy 5083, Aluminum alloy 6061,  
PE61102A, AST23, WU002

IAC ACCESSION NUMBER: MCIC-104288

IAC DOCUMENT TYPE: MCIC -HARD COPY--  
The fracture characteristics of two steels (ASTM  
A-516 and A-607) and two aluminums (ASTM B-  
209, alloys 5083 and 6061) were analyzed under  
tensile, fatigue, and impact loading conditions.  
The effect of hydrogen embrittlement on the steels'  
behavior when fractured under tensile and fatigue  
conditions was investigated.

IAC SUBJECT TERMS: M--(U)Engineering Steel, A607,  
A516, Aluminum Alloys, 5083, CCC, Hydrogen  
Embrittlement, Fatigue Test, Impact Loading,  
Fracture Mechanics, Dimpling, Charpy Impact,  
Temp -273 to -151 C, Temp 0 to 99 C, Ultimate  
Tensile Strength, Tensile Yield Strength;

AD-A055 520

UNCLASSIFIED

PAGE

90

AD-A055 095

UNCLASSIFIED

099062

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A055 095 5/3 9/2 13/1 10/1

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN ILL

Field Test of Building Energy Analysis  
Tools and Procedures.

DESCRIPTIVE NOTE: Interim rept.,  
MAY 78 88P Hittle, Douglas C. ;  
REPT. NO. CERL-IR-E-129  
PROJ: 4A762731AT41  
TASK: 06  
MONITOR: CEEDO TR-77-38

UNCLASSIFIED REPORT

DESCRIPTORS: \*Energy management, \*Buildings,  
\*Computer programs, Systems analysis, Energy  
consumption, Mathematical prediction, Energy  
conservation, Field tests, Air conditioning  
equipment, Heating, Performance(Engineering),  
Solar heating, Military facilities, Programming  
manuals

IDENTIFIERS: BLAST computer program, PE62731A,  
AST41, WU021

This report describes the results of the field test  
of three building energy analysis tools: (1)  
the Building Loads Analysis and System  
Thermodynamics (BLAST) program, (2)  
Predicting the Performance of Solar Energy  
Systems, and (3) Use of the Building  
Loads Analysis and System Thermodynamics  
Program to Perform Total Energy System  
Analysis. Projects to which BLAST was applied  
included a flight simulator training facility,  
administrative buildings, and a hangar-administration  
building. Results showed that these tools can be  
effectively and usefully applied to the analysis and  
design of energy-conservative buildings. However,  
extensive revision of the draft BLAST User's  
Manual was recommended. The recommended revisions  
were accomplished prior to the publication of the  
User's Manual in December 1977. Widespread  
dissemination and use of these energy analysis tools  
is recommended.

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CDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A055 066 19/4 6/6

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLHypothetical Case Studies of Operational  
Changes to Reduce Noise Levels.

(U)

DESCRIPTIVE NOTE: Interim rept.,

MAY 78 42P Goff, Richard J. ;Pawlowska,

Violetta I. ;

REPT. NO. CERL-IR-N-44

PROJ: 4A76270A896

TASK: 03

UNCLASSIFIED REPORT

DESCRIPTORS: \*Noise reduction. \*Predictions,  
\*Blast, Army operations. Military facilities,  
Army, Methodology, Case studies  
IDENTIFIERS: WU004, AS896, PE6270A

(U)

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This report describes the effectiveness of various noise mitigation techniques as applied to blast noise. The Army's most significant noise source. The main thrust of the analysis was aimed at operational changes, including relocation, rescheduling, and firing during more optimal weather conditions. Three hypothetical case studies were investigated, and each technique was quantitatively evaluated. It was found that the three types of operational changes studied did prove more or less effective. However, these mitigation techniques are site-specific, and the decision to use them should be based on how they will affect the base mission, their cost-effectiveness, their noise reduction abilities in terms of decibels, and their benefits to the individual site. (Author)

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AD-A055 066

UNCLASSIFIED

PAGE

91

AD-A054 935

UNCLASSIFIED

099062

## UNCLASSIFIED

CDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A054 935 13/2

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLImproved Collection and Container-Washing  
Systems for Solid Waste Management at Army  
Installations.

(U)

DESCRIPTIVE NOTE: Interim rept.,

MAY 78 21P Gerdes, Gary L. ;Mikucki,

Walter J. ;

REPT. NO. CERL-IR-N-45

PROJ: 4A762720A896

TASK: T2

UNCLASSIFIED REPORT

DESCRIPTORS: \*Solid wastes, \*Waste management,  
\*Refuse collection, \*Containers, Test and  
evaluation, Army equipment, Feasibility studies  
IDENTIFIERS: PE62720A, AS896, WU007

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(U)

This report evaluates two aspects of solid waste management: (1) the impact of changing from backyard collection of Government Issue refuse containers (GI cans) to curbside collection using a solid waste container called a Mobil Toter (Trademark); and (2) the feasibility of using a portable, recycling multiple-container-washing unit designed and fabricated at the U.S. Army Construction Engineering Research Laboratory. The Mobil Toter system was evaluated through an implementation study at Fort Eustis, VA. The 28 percent decrease in collection time noted in the study cannot be ascribed to use of the Mobil Toter container alone; it also reflects the effects of curbside vs. backyard collection, fewer containers (Mobile Toter is larger than a GI can), and power-assisted dumping. The container wash unit was evaluated by facilities engineering personnel at Fort Leavenworth, KS. The test indicated that the concept was sound, but that greater wash pressure and pickup suction would improve performance. (Author)

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## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A054 707

13/2

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLField Evaluation of the Modular Augered-Bed  
Heat-Recovery Solid Waste Incinerator.

(U)

DESCRIPTIVE NOTE: Final rept.,

MAY 78 58P Hathaway, S. A.; Lin, J.

S.; Collishaw, A. N.;

REPT. NO. CERL-TR-E-128

PROJ: 4A763734DT09

TASK: T1

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Incinerators, \*Solid wastes, Field tests, Heat recovery, Wastes (Industrial), Waste disposal, Test and evaluation, Augers, Combustion, Sanitary engineering, Modular construction, Furnaces, Military facilities, Heat exchangers

IDENTIFIERS: PE63734A, WU002

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IAC ACCESSION NUMBER: PL-901093

IAC DOCUMENT TYPE: PLASTIC -HARD COPY--

This report presents the results of a field evaluation of the operating prototype modular (package) augered-bed, heat-recovery, solid-waste incinerator (ABI) conducted on 23-28 May 1977. The ABI tested is a horizontal, cylindrical, cast refractory-faced combustion chamber fitted with a water-cooled auger to convey burning waste. Feeding and ash removal are continuous, and steam is produced in a coiled heat exchanger at the base of the stack from water preheated in the auger. The throughput capacity of the furnace is approximately 3.5 tons/hour (3.2 mt/hour), more than three times the capacity of currently marketed modular incinerators. The report furnishes a detailed description of the system evaluated, a critical appraisal of essential unit operations, and environmental and energy data. The satisfactory performance of the furnace, which is a major innovative aspect of the unit evaluated, indicated that it has potential for Army use. However, because of the unreliability of mechanical auxiliaries, inadequate materials of construction, and poor system configuration, the ABI as it

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AD-A054 707

UNCLASSIFIED

PAGE

92

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A054 440

11/9

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CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLConstruction with Field Moldable Polyurethane  
Foam Blocks.

(U)

DESCRIPTIVE NOTE: Final rept.,

APR 78 50P Smith, Alvin;

REPT. NO. CERL-TR-M-233

PROJ: 4A762619AT41

TASK: 08

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Polyurethane resins, \*Foam, \*Construction materials, Molding techniques, Field tests, Portable shelters, Theater level operations, Weight reduction, Savings, Skills, Manpower utilization, Adhesive bonding, TECHNOLOGY TRANSFER, Fire safety

IDENTIFIERS: PE62619A, AST41, WU002

(U)  
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IAC ACCESSION NUMBER: PL-029484

IAC DOCUMENT TYPE: PLASTIC -HARD COPY--

This report presents the results of an investigation of the use of polyurethane foam for expedient shelters in the theater of operations (TO). The evaluation showed that polyurethane foam can bring about significant savings in material shipping weight and volume, construction time, and required personnel skill levels, compared to present base development materials. A model structure was erected in which the wall components were building blocks molded from a low density foam. The building blocks can be fabricated in the field by low-skill personnel using simple molds and mixing equipment. The blocks are equal in size to two regular 8 by 8 by 16 in. (203 by 203 x 406 mm) concrete blocks and weigh about 4 lb (1.8 kg) each. They can be rapidly assembled into a wall using an adhesive applied by caulking gun. Conventional foundation, floor, and roofing systems can be used with this wall system. (Author)

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IAC SUBJECT TERMS: P--(U) Specifications, Urethanes, Shelters, Fabrication, Weight savings, Molded Parts, Buildings, Wall panels, Roofing, Flooring, Foam in place, Flame retardants, Safety, Coatings, ZZ Unlimited;

AD-A054 440

UNCLASSIFIED

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## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A054 309 1/5 13/1  
CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILL

Reliability Analysis for Airfield Lighting  
Systems. (U)

DESCRIPTIVE NOTE: Final rept.,  
MAR 78 122P Lindow, E. S.; Kuo, F.;  
REPT. NO. CERL-TR-M-237  
CONTRACT: DOT-FA66WAI-118  
MONITOR: FAA-RD 77-148

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Lighting equipment, \*Runways,  
\*Airports, Computerized simulation, Mathematical  
analysis, Reliability, Sensitivity,  
Maintainability, Cost analysis (U)

This report presents a model for performing  
reliability analyses of airfield lighting systems.  
A set of consecutive coefficients was developed to  
account for system failure criteria which include  
random light outages, consecutive light outages, and  
consecutive light bar failures. Probability theory  
and simulation techniques are used with the  
consecutive coefficients to determine system  
reliability. A computerized version of the model  
was used in a sensitivity analysis to determine the  
effect on system reliability of parameters such as  
unit reliability, system configuration, maintenance  
strategy, and unit performance characteristics.  
(Author) (U)

AD-A054 309

UNCLASSIFIED

PAGE

93

AD-A054 307

UNCLASSIFIED

099062

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A054 307 7/1 13/10  
CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILL

Cathodic Protection Design for Brackish  
Water Systems: Fresh Water Bayou  
Lock. (U)

DESCRIPTIVE NOTE: Final rept.,  
MAY 78 41P Kearney, Frank W.;  
REPT. NO. CERL-TR-M-235

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Cathodic protection,  
\*Locks (Waterways), \*Salt water, Salinity,  
Anodes, Construction, Protection, Turbulence,  
Debris (U)  
IDENTIFIERS: Design, LPN-CWIS-31204 (U)

This report presents design guidance for cathodic  
protection systems for hydraulic structures used by  
the Corps of Engineers in navigational lock  
systems. The guidance is designed for structures  
subjected to extreme variations in water conductivity  
and moderate to severe stochastic loads induced by  
gate movement, turbulence, etc. The guidance is  
based on a cathodic protection system design  
developed for the Fresh Water Bayou Lock in  
the Intracoastal Waterway System. The  
guidance includes selection of the types of systems  
which can be used in waters having specific salinity  
ranges and procedures for determining the number of  
anodes required and their optimum placement. (U)

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A054 306 13/13

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLRapid Construction for Hardening Above-  
Ground Facilities to Small Arms Fire.

(U)

DESCRIPTIVE NOTE: Final rept.,

APR 78 58P Bellini, Paul X. ; Williamson,

Gil R. ; Morse, David C. ;

REPT. NO. CERL-TR-W-230

PROJ: 4A762719AT41

TASK: T5

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Shelters, \*Concrete, \*Fiber reinforced composites, \*Construction, Hardening, Protection, Small arms ammunition, Ballistics, Shear tests, Construction materials, Tables(Data), Test methods

IDENTIFIERS: PE62719A, AST41, WU003

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The purpose of this research was to develop an efficient structural system for the rapid construction of above-ground hardened shelters in the theater of operations. This system would have a short construction time, use unskilled labor, and be capable of resisting small arms fire and bomb blast concussion and fragmentation. Two material systems were considered: (1) standard concrete block with a surface bond material using no conventional mortar joints, and (2) ferrocement-several layers of wire mesh impregnated with Portland cement mortar. The standard concrete block system was chosen based on results of a series of laboratory tests, and a full-scale shelter was designed, constructed, and tested to determine its actual protective capabilities. It was found that surface-bonded concrete walls having block cells filled with mortar or pea gravel provide complete protection from weapons such as the M16, M1911, and M60 in addition, such structures can be built rapidly by unskilled workers. Lightweight concrete blocks having cells filled with steel-fiber mortar will provide complete protection from M14 and M16 rifles, M1911 pistols, and M2 machine guns.

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AD-A054 306

UNCLASSIFIED

PAGE

94

AD-A054 299

UNCLASSIFIED

099062

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A054 299 5/1 13/2 13/3 13/13

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLPreliminary Investigations of Risk Sharing in  
Construction Contracts.

(U)

DESCRIPTIVE NOTE: Interim rept.,

APR 78 74P Erikson, Carl A. ; O'Connor,

Michael J. ; Rood, Omar E. , Jr. ;

PROJ: 4A161102AT23

TASK: A2

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Contract administration, \*Risk, Construction, Army Corps of Engineers, Contracts, Literature surveys, Cost analysis, Allocations, Litigation, Army procurement, Strategy, Losses, Statistical analysis, Cost estimates, Profits

IDENTIFIERS: WU005, AST23, PE61102A

(U)

(U)

This report presents the results of an investigation to delineate the current assignments of risk between the owner and the contractor in typical Corps of Engineers firm-fixed-price construction contracts. A working definition of risk is formulated. Research performed to date is summarized for the benefit of future researchers in this area. Included is a summary of existing construction risk categorization schemes and a comprehensive reading list of literature available in the construction risk area. (Author)

(U)

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099052

AD-A053 272 13/3 13/13 11/9

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLFeasibility of Structural Foam/Concrete  
Building for Theater of Operations Use.

(U)

DESCRIPTIVE NOTE: Final rept.,

MAR 78 24P Smith, Alvin ;

REPT. NO. CERL-TR-M-231

PROJ: 4A762719AT41

TASK: 08

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Shelters, \*Polystyrene, \*Foam,  
Construction materials, Logistics support,  
Military requirements, Manhours, Costs, Skills,  
Army operations, Walls,  
Foundations (Structures)  
IDENTIFIERS: PE62719A, AST41, WU002

(U)  
(U)

IAC ACCESSION NUMBER: PL-029295

IAC DOCUMENT TYPE: PLASTIC -HARD COPY--

This study was performed to assess the feasibility of using performed polystyrene foam building blocks to construct shelters in noncombative areas of the Theater of Operations (TO). A structure in which the principal wall material was polystyrene foam blocks was designed, constructed, and evaluated on the basis of logistics requirements, manpower time, required skill levels, and costs. It was concluded that the polystyrene foam block building required less than half the man-hours and slightly lower skill levels than were necessary to erect a similar-sized Army Facilities Components System Timber Building. However, the foam block building has a 75 percent greater shipping volume in the expanded form, and a 300 percent greater materials cost. Based on the conclusions, it is recommended that the foam block system be used in the TO only if the expansion and molding equipment is established within the area of planned usage.

(U)

IAC SUBJECT TERMS: P--(U)Structural foam, Buildings,  
Polystyrene foam, Rigid foam, Design, Fabrication,  
Testing, Military applications, Shelters, Foaming,  
Urethanes, Spray applications, Insulation, Wall  
panels, Material costs, Concrete, Flooring, ZZ

AD-A053 272

## UNCLASSIFIED

PAGE

95

AD-A053 229

## UNCLASSIFIED

099062

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A053 229 5/1 14/1 13/13 9/2

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLSupervision and Administration Cost/Rate  
Forecasting System. Volume I. User's  
Manual.

(U)

DESCRIPTIVE NOTE: Special rept.,

MAR 78 19P O'Connor, Michael J. ;

Lidral, Robert ;

REPT. NO. CERL-SR-P-87

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Management planning and control, \*Cost  
models, Military engineering, Instruction manuals,  
Computer programs, Management information systems,  
Statistical data, Regression analysis, Data bases,  
Statistical analysis, Supervision, Supervisors,  
Administrative personnel, Mathematical prediction,  
Construction

(U)

This volume describes the use of the Supervision and Administration (S and A) Cost/Rate Forecasting System to maintain S and A data, to update the S and A forecasting model, and to forecast future S and A costs and rates. Volume II, the Programmer's Guide, contains software documentation. (Author)

(U)

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A053 228 13/3 5/3

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLTrends in the Real Prices of Selected  
Construction Products and Materials, 1946-  
1976.

(U)

DESCRIPTIVE NOTE: Special rept.,  
MAR 78 36P Ramsson, R. ;  
REPT. NO. CERL-SR-D-84  
PROJ: 4A762731A141  
TASK: T7

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Construction materials, \*Cost  
analysis, Lumber, Structural steel, Plywood,  
Concrete, Fittings, Brass, Clay, Paperboard,  
Heating plants, Asphalt, Gypsum,  
Inflation(Economics), Price index  
IDENTIFIERS: Plumbing fixtures, PE62731A,  
WU005, ASI41

(U)

(U)

This study measured trends in the relative prices  
of 13 construction goods and materials from 1946  
through 1976. The prices of three of these  
products--Douglas Fir lumber, structural steel  
products, and steel reinforcing bars--have increased  
substantially since World War II. The prices  
of plywood, building paper and board, heating  
equipment, asphalt, and gypsum products have declined  
during the post-war period. The prices of the  
remaining products--Southern Pine lumber,  
concrete products, millwork, plumbing fixtures and  
brass fittings, and structural clay products--have  
shown little or no change. The pattern of the real  
prices of these products in 1976 suggests that  
savings in construction materials can be obtained by  
substituting for those products whose prices have  
increased. (Author)

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AD-A053 228

UNCLASSIFIED

PAGE

96

AD-A053 227

UNCLASSIFIED

099062

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A053 227 13/2

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLWater Usage Profile -- Fort Carson,  
CO.

(U)

DESCRIPTIVE NOTE: Interim rept.,  
MAR 78 61P Matherly, J. E. ; Staub, M.  
J. ; Benson, L. J. ; Fileccia, R. J. ;  
REPT. NO. CERL-IR-N-34  
PROJ: 4A762720A896  
TASK: O2

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Water supplies, Consumption, Water  
conservation, Flowmeters, Water distribution,  
Military facilities, Army, Colorado  
IDENTIFIERS: Water conservation devices, Fort  
Carson, PE62720A, WU001, AS896

(U)

(U)

This report presents preliminary data from an  
investigation of water usage at Fort Carson,  
CO. Water meters were installed on supply lines  
to various facility types, and data were accumulated  
for a 3-month period. This investigation is  
continuing, and similar studies will be performed at  
other U.S. Army installations. Preliminary  
data reported herein will help formulate the basis  
for selecting water conservation devices to be  
installed at Fort Carson. Water metering after  
water conservation devices have been installed will  
provide data for assessing the impact of such devices  
on total water usage. Results of the water  
metering effort at Fort Carson, CO, have  
revealed unusually high consumption of water in  
family housing areas, presumably for irrigation.  
The study has indicated that civilian water demands  
must be compared with those of Fort Carson in  
order to ascertain why per capita water usage at the  
installation is so high. (Author)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A052 708 13/1 13/2

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN ILL

Fixed Facilities Energy Consumption Investigation Data Users Manual.

(U)

DESCRIPTIVE NOTE: Interim rept.,  
FEB 78 157P Windlingland, L.; Sliwinski, B.  
; Mech. A. ;  
REPT. NO. CERL-IR-E-127  
PROJ: 4A762731A741  
TASK: 06

UNCLASSIFIED REPORT

DESCRIPTORS: \*Military facilities; \*Energy consumption; Monitoring. Data acquisition. Data bases. Data storage systems. Information retrieval. Energy conservation. Buildings. Army. Instruction manuals  
(U)  
IDENTIFIERS: User manuals. WU007. AST41. PE62731A  
(U)

This report describes a study being conducted to identify energy consumption patterns at fixed Army facilities. The procedure used to select sites, buildings, and instruments for monitoring is described, as is the data storage system and the method for data access. The report describes and provides photographs of over 110 buildings presently being monitored at three Army posts and describes the energy parameters being monitored in each building. The structure of the energy data storage system is described, and instructions on how to obtain the energy use data that have been gathered are provided, along with examples of available data output formats. (Author)  
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AD-A052 708

UNCLASSIFIED

PAGE

97

AD-A051 999

UNCLASSIFIED

099062

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A051 999 20/1 1/2 12/1

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN ILL

Rotary-Wing Aircraft Operational Noise Data.

(U)

DESCRIPTIVE NOTE: Final rept.,  
FEB 78 70P Homans, Brian ; Little, Lincoln  
; Schomer, Paul D. ;  
REPT. NO. CERL-TR-N-38  
PROJ: 4A762720A896  
TASK: 03

UNCLASSIFIED REPORT

DESCRIPTORS: \*Aircraft noise; \*Rotary wing aircraft. \*Helicopters. Flight maneuvers. Hovering. Overflight. Aircraft landings. Takeoff. Mathematical prediction. Acoustic measurement. Acoustic data. Sound pressure  
(U)  
IDENTIFIERS: H-1 Aircraft. H-47 Aircraft. H-54 Aircraft. H-55 Aircraft. H-58 Aircraft. PE62720A. AS896. WU001  
(U)

This report presents Sound Exposure Level (SEL) vs distance curves for eight models of Army rotary-wing aircraft (OH-58, AH-1G, UH-1M, UH-1H, UH-1B, CH-47B, CH-54, and TH-55) performing dynamic operations, and Equivalent Sound Level contours for the same aircraft in static operations. The dynamic operations consisted of level fly overs, ascents, descents, turns, takeoffs, and landings; static operations included in-ground and out-of-ground effect hovers. Results are grouped according to model and type of operation and are suitable for use in manual or computerized programs for predicting noise impact from rotary-wing aircraft. (Author)  
(U)



UNCLASSIFIED

DNC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099052

AD-A051 737 20/1 14/1 13/13 13/3

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILL

Construction-Site Noise Control Cost-  
Benefit Estimating Procedures.

(U)

DESCRIPTIVE NOTE: Interim rept..

JAN 78 35p Kessler, F. M.; Schomer, P.  
D.; Chanaud, R. C.; Rosendahl, R.;

REPT. NO. CERL-IR-N-36

PROJ: 4A762720A896

TASK: 03

UNCLASSIFIED REPORT

DESCRIPTORS: \*Noise reduction, \*Cost estimates,  
\*Construction equipment, Sound pressure, Barriers,  
Specifications, Sites, Backfills, Trenching,  
Earth handling equipment, Substitutes,  
Foundations (Structures), Modification,  
Concrete, plywood

IDENTIFIERS: PE62720A, A5896  
(U)  
(U)

This report aids the U.S. Army Corps of  
Engineers construction cost estimator in  
determining the level of noise generated at  
construction sites, in comparing this level with  
Corps of Engineers criteria, and in estimating  
costs to a contractor of reducing the noise. A  
companion report, Construction-Site Noise  
Control-Cost-Benefit Estimation Technical  
Background, Technical Report N-37 (U.S.  
Army Construction Engineering Research  
Laboratory (CERL), January 1978), contains  
the rationale and data supporting this report.  
(Author)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A051 438 5/1 13/13 5/3

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILL

Proceedings of the CIB W-65 Working  
Commission on Organization and Management of  
Construction. Volume III. International  
Council for Building Research and  
Documentation and Dissemination.

(U)

SEP 77 51p Diejeveen, W. J.; Docherty,  
Peter; Penhoff, Sten; Paeresson, Jan; Boland,  
Thomas F.;

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: See also report dated May 76, AD-  
A025 317.

DESCRIPTORS: \*Construction, \*Management,  
\*Industries, \*Symposia, Organizations,  
Management planning and control, Technology  
transfer, Morphology, Workshops

(U)

This report presents the proceedings of the  
Symposium on the Organization and Management of  
Construction presented by the Working  
Commission of the International Council for  
Building Research and Documentation and  
Dissemination at Edinburgh, Scotland in  
September 1977. This volume contains rapporteur  
papers on the topics of organization and management  
of construction of the firm, the technology transfer  
of organization and management of construction, and a  
morphology of the construction industry.  
(Author)

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AD-A051 737

UNCLASSIFIED

PAGE

98

AD-A051 438

UNCLASSIFIED

099062

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A051 074 5/3 5/1

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLFixed Facilities Energy Consumption  
Investigation Initial Energy Data.

(U)

DESCRIPTIVE NOTE: Interim rept.,

JAN 78 97P Windingland, L. M. ;

Sliwinski, B. J. ;

REPT. NO. CERL-IR-E-120

PROJ: 4A762731AT41

TASK: 06

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Energy consumption, \*Military facilities, Surveys, Data acquisition, Fossil fuels, Electricity, Diurnal variations, Seasonal variations, Energy conservation, Natural gas, Heating oils, Economic analysis

IDENTIFIERS: AST41, PE62731A, WU007

This report describes energy consumption data obtained between December 1976 and March 1977 for 45 Army buildings being monitored at Fort Belvoir, VA, Fort Carson, CO, and Fort Hood, TX, as part of a study being conducted to identify energy consumption patterns at fixed Army facilities. The 45 buildings represent six of the major energy consumer groups found on Army installations: family housing, troop housing, administration/training buildings, production/maintenance buildings, medical/dental buildings, and community support facilities. This report provides potential users of energy data with preliminary findings and indicates the formats and analysis techniques which will be used in a full-year energy-consumption data report to be published in FY78. Consumption data for electrical energy and fossil fuels are presented as monthly energy-consumption totals for the six energy consumer groups. The electrical data for each building are analyzed by computing the daily usage per unit area. The heating energy use for various buildings is compared by computing the energy used per unit area per heating-degree day. Typical daily and monthly usage profiles are presented for each energy consumer group. (Author)

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AD-A051 074

## UNCLASSIFIED

PAGE

99

AD-A050 813

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099063

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A050 813 13/3 20/1

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLConstruction-Site Noise Control Cost-  
Benefit Estimation Technical Background.

(U)

DESCRIPTIVE NOTE: Final rept.,

JAN 78 105P Kessler, Fred M. ; Schomer,

Paul D. ; Chanaud, Robert C. ; Rosendahl, Eugene

REPT. NO. CERL-TR-N-37

## UNCLASSIFIED REPORT

Availability: Microfiche copies only.

DESCRIPTORS: \*Construction equipment, \*Noise reduction, Sites, Machinery noise, Noise pollution, Control systems, Cost effectiveness, Cost estimates, Technology transfer, Mathematical models, Computerized simulation, Data acquisition, Scheduling

Presented are methods of estimating noise level at a construction site, methods of noise reduction and control at a construction site, and the associated costs for this reduction with the emphasis on equipment noise control. (Author)

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## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A050 169 10/2 14/2

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLEvaluation of Instrumentation for Testing  
Large Generator Sets. (U)

DESCRIPTIVE NOTE: Special rept.,

FEB 78 47P Ford, W. D. ; Pollock, M.

J. ;

REPT. NO. CRL-SR-E-121

PROJ: 4A763734DT08

TASK: 07

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Electric generators, \*Electric power plants, \*Instrumentation, \*Test and evaluation, Test equipment, Recording systems, Field tests, Performance (Engineering), Military facilities, Diesel engines, Frequency, Voltage, Measureme  
IDENTIFIERS: WU001, PE63734A, AST08

This report, which supplements CRL Special Report E-103, presents the results of an investigation of instrumentation for use in measuring and recording voltage and frequency changes during performance testing of large engine-generator sets intended for stationary electric power generation service in fixed military facilities. Based on analysis of (1) the specific characteristics needed to fulfill the end use for which the electric power will be produced and (2) the instrumentation currently described in MIL-HDBK-7058, inadequate instrumentation, primarily that used for transient measurement, was selected for replacement by advanced instrumentation. Five advanced instrumentation systems were selected for field testing based on their suitability for field testing, their recording capability, and their capability to measure in the desired range. The system which performed best in the field testing was the Gould 2200 Recorder. It is recommended that this recorder system, supplemented by a Dranetz line monitor to prevent accuracy problems caused by the Gould system's dependence on paper slip and pen width, be used for testing utility-grade and medium-grade power systems. Testing of precision-grade systems would require use of a transient digitizer (U)

AD-A050 169

UNCLASSIFIED

PAGE

100

AD-A049 029

UNCLASSIFIED

099062

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A049 029 1/5 13/2 5/1

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLDevelopment of a Pavement Maintenance  
Management System. Volume II. Airfield  
Pavement Distress Identification Manual. (U)

DESCRIPTIVE NOTE: Final rept. Jul 74-Jul 76.

DEC 77 115P Shahn, Mohamed Y. ; Darter,

Michael I. ; Kohn, Starr D. ;

REPT. NO. CRL-TR-C-76-Vol-2

CONTRACT: MIPR-F08952-76-66005

MONITOR: CEEDO TR-77-44-Vol-2

## UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: Supersedes Rept. no. AFCEC-TR-76-27-VOL-2 dated Nov 76. AD-A042 053. See also Volume I. AD-A048 884.

DESCRIPTORS: \*Pavements, \*Runways, \*Maintenance management, Concrete, Asphalt, Cracking (Fracturing), Cracks, Classification, Loads (Forces), Repair, Surveys (U)

This manual is designed to provide airfield pavement inspectors with a comprehensive reference for pavement distress identification. The information is to be used in conjunction with procedures presented in Volume I of this report to determine pavement condition and maintenance and repair requirements. The types of airfield pavement distress are listed alphabetically under the major categories of asphalt- or tar-surfaced pavements and jointed concrete pavements. Names, descriptions, severity levels, photographs, and measurement or count criteria are presented for each distress type. (Author) (U)

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099052

AD-A048 982 13/1 9/2

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLThe Building Loads Analysis and System  
Thermo-Dynamics (BLAST) Program. Volume  
II. Reference Manual.

(U)

DESCRIPTIVE NOTE: Final rept.,

DEC 77 437P Hittle, D. C. ;

REPT. NO. CERL-TR-E-119-Vol-2

PROJ: 4A762731AT41, 2102

TASK: 06, 01

MONITOR: CEEDO TR-77-35-Vol-2

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: See also Volume 1, AD-A048  
734.DESCRIPTORS: \*Energy management, \*Buildings,  
\*Computer programming, \*Programming manuals,  
Subroutines, Flow charting, Algorithms,  
Centralized, Heating plants, Air conditioning  
equipment, Ventilation, Thermal insulation,  
Meteorological data, Energy consumption, Thermal  
stresses, High level languages, Computer program  
documentation

(U)

IDENTIFIERS: WUCEDD021020103, AST41, PE62731A,  
PE63723F, WU012, WU021

(U)

The Building Loads Analysis and System  
Thermodynamics (BLAST) program is a sophisticated  
set of subprograms for predicting energy consumption  
in buildings. The four major subprograms are:  
the input processor, which parses the high-level  
input language and sets up the building/systems/plant  
descriptions; the building loads subprogram, which  
computes the hourly space load in a building or zone  
based on the user's description of the building/zone  
and hourly weather data; the air distribution system  
simulation subprogram, which calculates the coil  
energy demands, fan power, etc., based on the user's  
description of the air handling system and the hourly  
space load data calculated by the previous  
subprogram; and the central energy plant simulation  
subprogram, which calculates energy consumption of a  
central/solar/total energy plant based on the user's  
description of the plant and the hourly coil loads  
calculated by the previous subprogram, and performs (U)

AD-A048 982

UNCLASSIFIED

PAGE

101

AD-A048 884

UNCLASSIFIED

099062

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A048 884 1/5 13/2 5/1

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLDevelopment of a Pavement Maintenance  
Management System. Volume I. Airfield  
Pavement Condition Rating.

(U)

DESCRIPTIVE NOTE: Final rept. Jul 74-Jul 76,

DEC 77 232P Shahin, Mohamed Y. ;Darter,

Michael I. ;Kohn, Starr D. ;

REPT. NO. CERL-TR-C-76-VOL-1

CONTRACT: MIPR-FQ8952-76-66005

MONITOR: CEEDO TR-77-44-VOL-1

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: Supersedes rept. no. AFCEC-TR-76-  
27, AD-A041 461. See also Volume 2, AD-A049  
029.DESCRIPTORS: \*Pavements, \*Runways, \*Maintenance  
management, Concrete, Asphalt, Surveys,  
Classification, Ratings, Deformation,  
Inspection, Maintenance, Repair,  
Cracking(Fracturing)

(U)

This report describes the development and  
verification of a pavement condition index (PCI)  
for rating the condition of jointed concrete and  
asphalt-or tar-surfaced airfield pavements. The  
PCI, which measures airfield pavement structural  
integrity and surface operational condition, is  
calculated based on measured pavement distress types,  
severities, and densities obtained during an  
inspection of the pavement. Volume II of this  
report presents distress types, descriptions,  
severity levels, and measurement criteria for use in  
performing the pavement inspections.

(U)

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A048 250 13/2 1/5

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLThe Effects of Gear Pattern on Pavement  
Systems Performance. (U)

DESCRIPTIVE NOTE: Final rept.,  
FEB 74 126P Rice, J. L.; Panak, J. J.  
; Healy, J. J.;  
REPT. NO. CERL-TR-S-30  
PROJ: 4A664-717D895  
TASK: 04

## UNCLASSIFIED REPORT

Availability: microfiche copies only.  
DESCRIPTORS: \*Pavements, runways,  
Performance(Engineering), Landing impact,  
Loads(Forces), Failure(Mechanics),  
Thickness, Concrete, Structural analysis,  
Structural engineering, Pavement bases,  
Computerized simulation, Computer programs,  
Tables(Data), Computer applications,  
Strength(Mechanics)  
IDENTIFIERS: PE64717A, AS895, WU003

This report presents the results of a study of the  
effects of gear pattern on airfield pavement  
performance. The report presents the methodology  
required to express aircraft traffic in terms of  
passes rather than the current coverage concept.  
The method is capable of considering wheel  
interaction rather than only surface geometry.  
(Author)

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## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A048 102 13/13 5/2

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLCivil Works Construction Cost Index  
System (CWCCIS). (U)

DESCRIPTIVE NOTE: Final rept.,  
DEC 77 146P Poskus, U. R.;  
REPT. NO. CERL-TR-P-85

## UNCLASSIFIED REPORT

Availability: Microfiche copies only.  
DESCRIPTORS: \*Construction materials, \*Civil  
engineering, Indexes, Dams, Reservoirs,  
Locks(Waterways), Electric power plants,  
Roads, Bridges, Railroads,  
Channels(Waterways), Levees, Flood control,  
Foundations(Structures), Structural engineering,  
Costs

(U)

This report describes a system of cost indices for  
updating early government estimates of the costs of  
heavy construction in civil works projects. The  
system provides national indices specific to 19 major  
construction types (features). The feature  
indices are computed from three levels of subindices  
which provide increasing detail. The first level  
below the feature consists of indices for five  
primary categories of work-earthenwork (E), concrete  
(C), steel (S), mechanical (M), and electrical  
(L)-and a secondary category, buildings (B).  
The third level breaks each category into labor  
(L), plant (P), and material (M) resource  
classes. The lowest level provides indices for the  
actual resource types used in the construction for  
each resource class. The user can either use the  
feature index as provided or modify it by changing  
the weighting of one or more of the items in the  
three lower levels. The indices can also be  
regionalized by substituting region-specific resource  
type indices at the lowest level.

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AD-A048 250

UNCLASSIFIED

PAGE 102

AD-A048 102

UNCLASSIFIED

099062

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A047 969 6/6 15/7

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLEnvironmental Noise Impact Analysis for  
Army Military Activities: User  
Manual.

(U)

DESCRIPTIVE NOTE: Final rept..

NOV 77 120P Goff, R. J. ; Novak, E. W.

REPT. NO. CERL-TR-N-30

PROJ: 4A162121A896

TASK: 01

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Noise pollution, \*Environmental impact  
statements, Level(Quantity), Assessment,  
Quantitative analysis, Army operations, Damage,  
Criteria, Vehicles, Helicopters, Army equipment,  
Manuals

(U)

IDENTIFIERS: Guidelines, AS896, PE62121A,

WU001

(U)

This manual presents the most current techniques for evaluating the environmental impact of noise emissions from proposed and ongoing Army activities. It is designed for use in conjunction with the CERL-developed computer systems to produce an integrated approach to environmental impact assessment. The manual provides the methodology for determining and documenting environmental noise levels, procedures for interpreting these levels in terms of impact on the human environment, methods by which these impacts might be mitigated, and finally procedures to prepare comprehensive environmental noise impact assessments or statements in accordance with the Council on Environmental Quality (CEQ) Guidelines and AR 200-1. (Author)

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## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A045 708 13/3 5/1

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLProceedings of the CIB W-65 Symposium on  
Organization and Management of Construction,  
19-20 May 76, U.S. National Academy of  
Sciences, Washington, D.C. Volume II.  
Opening Addresses, Rapporteur Reviews, and  
Discourses.

(U)

MAY 76 122P

## UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: See also AD-A025 317.  
DESCRIPTORS: \*Construction, \*Management, Symposia,  
Management information systems, Computer  
applications, Cost analysis, Assessment, Decision  
making, Construction materials, Algorithms,  
Optimization, User needs

(U)

This report is the second volume of the proceedings of the Symposium on the Organization and Management of Construction presented by Working Commission W-65 of the International Council for Building held in May 1976. Volume I presented papers submitted to the symposium; this volume presents comments and discussion papers recorded at the symposium. Topics covered include organizational forms for construction, evaluation of organizational forms, and management methods in construction. (Author)

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PAGE

103

AD-A045 708

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A045 421 13/2 5/3

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN ILL

Cost of Recycling Waste Material from Family Housing.

(U)

DESCRIPTIVE NOTE: Final rept..

SEP 77 61P Freeman, R. E.; Donahue, B. A.; Kloster, S. E.; Schanche, G. W.; Smith, E. D.;

REPT. NO. CERL-TR-N-29

PROJ: 4A762720A896

TASK: T2

UNCLASSIFIED REPORT

DESCRIPTORS: \*Waste recycling, \*Solid wastes, Cost analysis, Costs, Military facilities, Housing(Dwellings), Residential section, Marketing, Resource management  
IDENTIFIERS: PE62720A, AS896, WU007

(U)  
(U)

The purpose of this research was to determine the cost of recycling waste from a selected family housing area at Fort Bragg through source separation in order to evaluate the feasibility of solid waste recovery and recycling at a military installation. This report presents (1) analysis of the waste volume and composition from the Normandy Heights area at Fort Bragg, (2) data showing the current cost of refuse collection and disposal in the Normandy Heights area, (3) a market analysis for recyclable material in the Fort Bragg area, and (4) a design for the recyclable material recovery strategy that was tested and the costs associated with this strategy, (5) participation rates of Normandy Heights residents, (6) waste reduction rates, and (7) collection labor data. It was found that recycling by source separation could be cost-effective, could reduce the amount of refuse to be landfilled, and could decrease the number of weekly collections. It was established that military family housing refuse is comparable to that of the civilian sector and that military personnel are willing to participate in a source separation recycling program. The research indicated that experienced personnel should collect recyclables. (Author)

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AD-A045 421

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PAGE

104

AD-A045 186

UNCLASSIFIED

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A045 186 11/2

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN ILL

Use of Fly Ash and High-Strength Reinforcing Bars in Military Construction.

(U)

DESCRIPTIVE NOTE: Final rept..

SEP 77 47P Howdyshe, Paul A.; Morse, David C.;

REPT. NO. CERL-TR-M-228

PROJ: 4A762719AT41

TASK: T7

UNCLASSIFIED REPORT

DESCRIPTORS: \*Reinforced concrete, \*Fly ash, \*Steel, High strength alloys, Economic models, Reinforcing materials, Military engineering, Construction materials, Energy conservation, Cost benefits, Resource management  
IDENTIFIERS: \*REBARS, WU005, AST41, PE62719A

(U)  
(U)

This report presents the results of an investigation to evaluate fly ash and high-strength reinforcing bars (Grade 60 and above) as alternate construction materials to alleviate the impact of material shortages on military construction. The evaluation was based on the effect of these materials on cost and resource (raw material and energy) intensity of military construction. The results show that the use of fly ash is economically feasible for 78 percent of all military installations in the United States. The resulting average savings per cubic yard of concrete would be 73 lb (43 kg/cu m) of cement and 2.72 X 10 to the 5th power Btu (3.75 X 10 to the 8th power J/cu m). This translates into a monetary savings of \$0.87/cu yd (\$1.14 cu m) and an energy savings sufficient to heat the average home in Illinois for 14 hours. Use of Grade 80 and Grade 60 high-strength reinforcing bars in place of the more conventional Grade 40 reinforcing bars can result in maximum material savings of 41 and 25 percent and a corresponding cost savings of 24 and 15 percent, respectively.

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A045 185 11/6 13/5

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILL

The Effects of Weld Porosity on the  
Fracture Toughness of A514F Steel.

DESCRIPTIVE NOTE: Interim rept.,

SEP 77 28P Cox, E. P. ;

REPT. NO. CERL-IR-M-227

PROJ: 4A762731AT41

TASK: 04

UNCLASSIFIED REPORT

DESCRIPTORS: \*Steel, \*Welds, \*Porosity, \*Tearing,  
dynamic tests, Fracture (Mechanics), Test  
equipment, Instrumentation, Clustering, Linearity,  
plastic deformation, Ductile brittle transition,  
High strength alloys, Structural steel, Technology  
transfer, Tensile properties, Electrodes  
IDENTIFIERS: Steel A-514F, WU011, AST41,  
PE62731A

IAC ACCESSION NUMBER: MCIC-102060

IAC DOCUMENT TYPE: MCIC -HARD COPY--

This report presents the results of an  
investigation conducted to evaluate the effects of  
clustered and linear porosity on the impact  
(dynamic tear) and dynamic fracture toughness of  
American Society for Testing and Materials  
(ASTM) A514 grade F steel welds. Tests were  
conducted using standard 1.59-cm dynamic tear  
specimens in a dynamic tear machine. Tests were  
also conducted using instrumentation recently  
developed for use with the dynamic tear machine.  
Results indicated that the upper shelf fracture  
toughness of welds containing clustered or linear  
porosity is sufficient to permit large-scale plastic  
deformation prior to fracture. However, the  
ductile-to-brittle transformation in welds containing  
linear porosity may be elevated to normal operating  
temperatures, thus increasing the possibility of  
catastrophic fracture. The instrumented dynamic  
tear test was found to provide a means of calculating  
dynamic fracture toughness values on the lower shelf  
and a lower bound for fracture toughness on the upper  
shelf in high-strength structural steels.

(Author)

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AD-A045 185

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PAGE

105

AD-A045 184

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A045 184 13/8 13/7

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILL

Corrosion Control in Civil Works:  
Cathodic Protection.

DESCRIPTIVE NOTE: Interim rept.,

AUG 77 69P Kearney, F. W. ;

REPT. NO. CERL-IR-M-222

UNCLASSIFIED REPORT

DESCRIPTORS: \*Cathodic protection, \*Corrosion  
inhibition, \*Hydraulic equipment, Electrochemistry,  
Anodes, Circuits, Rectifiers, Dams,  
Locks (Waterways), Steel, Sea water corrosion,  
Current density, Electric fields, Brackish water,  
Technology transfer, Protective coatings,  
Polarization

IDENTIFIERS: LPN-CWIS-31204

This report presents the initial results of a study  
being conducted to mitigate corrosion in Corps of  
Engineers civil works structures. This phase of  
the study dealt with specific aspects of cathodic  
protection. Basic electrochemical principles and  
cathodic protection experiments particularly germane  
to civil works problems are discussed, and an  
innovative investigation of cathodic protection  
current distribution using the continuum features of  
electric field analysis is presented. Recently  
developed automatic controlled rectifiers are  
analyzed, and their control response measured for  
applications involving brackish water. Guidelines  
for application of cathodic protection principles to  
system design are also presented. (Author)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A045 183 13/13 9/2

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLConstruction Specification Preparation within  
the EDITSPEC System.

(U)

DESCRIPTIVE NOTE: Interim rept.,  
SEP 77 24P Neely, Edgar S., Jr;  
REPT. NO. CERL-IR-P-84  
PROJ: 4A762731A741  
TASK: T1

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Construction, \*Specifications,  
\*Computer applications, Army Corps of Engineers,  
Automation, Computer aided design, Formats,  
Computer programs, Military engineering  
IDENTIFIERS: EDITSPEC Construction specification  
preparation system, PE62731A, AST41, WU009

This report provides management personnel with a  
brief description of the computer-aided construction  
specification preparation system known as EDITSPEC.  
The Corps of Engineers' current construction  
specification preparation process is described, as  
are the basic capabilities of the EDITSPEC system.  
Application of the EDITSPEC system within the  
current preparation process is presented along with  
procedures for implementing the system in a Corps  
District specification preparation section.  
(Author)

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AD-A045 183

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PAGE

106

AD-A044 993

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A044 993 20/4 20/11 12/1

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILL

Liquid-Spring Shock Isolator Modeling.

(U)

DESCRIPTIVE NOTE: Final rept. Jul 75-Aug 76,  
SEP 77 57P Sonnenburg, P. N.; Wendler,  
B. H.; Fisher, W. E.;  
REPT. NO. CERL-TR-M-226  
PROJ: 4A762719AT40  
TASK: A1

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Springs, \*Fluid mechanics, \*Shock  
absorbers, \*Mathematical models, Pilot studies,  
Shock (Mechanics), Isolation, Differential  
equations, Parameters, Variables, Experimental  
data, Technology transfer, Test and evaluation,  
Test equipment, Nonlinear systems, Damping,  
Least squares method  
IDENTIFIERS: \*Liquid springs, WU023, AST40,  
PE62719A

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The purpose of this pilot study was to determine  
whether mathematical models of high-performance shock  
isolators could be established from test performance  
data. A liquid spring was modeled using an open-  
parameter differential equation. A system  
identification technique was used to select the best  
algebraic form of the model and to optimize the  
parameters for the sample isolator. A comparison of  
the calculated response variables with the test data  
showed that the model was accurate and that isolator  
models could generally be established in this manner.  
The use of the isolator mathematical model and  
determination of optimum constant parameters for  
practical design purposes is discussed. However,  
conversion of this information to actual hardware  
design dimensions warrants further research and is  
not addressed. (Author)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A044 992 13/13 11/9

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLDome Shelter Construction with Polyurethane  
Foam.

(U)

DESCRIPTIVE NOTE: Final rept.,  
AUG 77 35P Smith, Alvin ;  
REPT. NO. CERL-TR-M-225  
PROJ: 4A762619AT41  
TASK: 08

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Domes (Structural forms), \*Portable  
shelters, \*Polyurethane resins, \*Foam,  
Construction equipment, Construction materials,  
Inflatable structures, Field equipment, Field  
tests, Sprays, Turntables, Balloons, Cost  
effectiveness, Training, Flammability, Membranes,  
Platforms  
IDENTIFIERS: WU002, ASI41, PE6261r1

IAC ACCESSION NUMBER: PL-027121  
IAC DOCUMENT TYPE: PLASTIC -HARD COPY--

This report presents the results of a study of the  
use of polyurethane foam in erecting expedient  
shelters (domes) in the Theater of Operations  
(TO). The evaluation indicated that these foams  
can effect savings in labor, time, shipping weight  
and volume, and material costs when compared to  
conventional material buildings. (Author)

IAC SUBJECT TERMS: P--(U)Urethanes, Shelters,  
Inflated structures, Fabrication, Design,  
Flammability, Weight comparisons, Portable  
structures, Structures, Properties, Spray foam,  
Membranes, Costs, Military applications, Domes, ZZ  
Unlimited.;

AD-A044 992

UNCLASSIFIED

PAGE

107

UNCLASSIFIED

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A044 991 13/13 11/9 11/12

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLPrefabricated Expandable Foam/Wood  
Structures for Theater of Operations.

(U)

DESCRIPTIVE NOTE: Interim rept.,  
SEP 77 35P Kao, A. M.; Whiteside, T.  
M.; Trent, R. L.; Smith, A. ;  
REPT. NO. CERL-IR-C-45  
PROJ: 4A763734DT34  
TASK: 04

## UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: See also Rept. no. CERL-IR-C-  
50, AD-A032 726 and Rept. no. CERL-IR-C-52,  
AD-A027 382.

DESCRIPTORS: \*Prefabricated buildings, \*Structural  
members, \*Wood, \*Polyurethane resins, \*Foam,  
Sprays, Expandable structures, Multipurpose,  
Construction equipment, Construction materials,  
Field equipment, Field tests, Insulation,  
Assembly, Transportable, Portable shelters,  
Military applications  
IDENTIFIERS: TOBSEP(Theater of Operations)  
Building System Evaluation Procedures),  
Theater of operations building system evaluation  
procedures, PE63734A, WU003, ASI34

(U)

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IAC ACCESSION NUMBER: PL-027538  
IAC DOCUMENT TYPE: PLASTIC -MICROFICHE--

This report, one of a series covering development  
of multipurpose structural components, documents the  
results of field experiments of several field-  
fabricated structural components using polyurethane  
spray-applied foam as a structural and insulative  
material in combination with wood. The components  
were evaluated from the standpoints of ease of  
fabrication, transportability, assembly and erection,  
relocatability, and expandability. A set of  
structural components that had potential military  
application in providing a wide range of temporary  
facilities for use in the theater of operations was  
selected. (Author)

(U)

IAC SUBJECT TERMS: P--(U)Rigid foam, Cellular  
plastics, Prefabricated structures, Spray applications,  
Urethanes, Expandable structures, Fabrication,

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A044 814 15/C 10/1

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLRecovery of Energy from Solid Waste at Army  
Installations. (U)

DESCRIPTIVE NOTE: Technical Manuscript,  
AUG 77 58P Hathaway, S. A. ;  
REPT. NO. CERL-Technical-Ms-E-118  
PROJ: 4A762731AT41  
TASK: T6

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Energy management, \*Energy conversion,  
\*Solid wastes, Incinerators, Heat, Recovery,  
Field equipment, Military facilities, Military  
requirements, Modular construction, Packaging  
IDENTIFIERS: Refuse derived fuel, WU011, AST41,  
PE62731A (U)

IAC ACCESSION NUMBER: PL-900843  
IAC DOCUMENT TYPE: PLASTIC -HARD COPY--

This paper provides a technical overview of the  
current status of solid waste-to-energy conversion  
systems scaled for use on Army fixed facilities and  
installations. Attention is given to modular  
(package) and field-erected heat recovery  
incineration systems and to using refuse-derived fuel  
(RDF) in existing steam generation plants. It is  
shown that most available systems have evolved as an  
art and not as products of basic scientific inquiry.  
The proper performance of many marketed systems  
cannot be guaranteed because neither long term  
operational data nor reproducible experimental  
information for design exists. Critical research  
areas in waste characterization, heat recovery  
incineration, and use of RDF are discussed, and  
accelerated scientific inquiry within each area is  
encouraged on a priority basis. (Author) (U)

IAC SUBJECT TERMS: P--(U)Reviews, Energy recovery,  
Solid wastes, RDF, Boiler feed, Incinerators,  
Military wastes, Heat recovery, Rotary kilns,  
Disposal equipment, Rotary basket grates, Shredders,  
Design guides, ZZ MTDE, ZZ Unlimited.;

AD-A044 814

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PAGE

108

AD-A044 813

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099062

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A044 813 15/5 10/1 10/2

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLAnalysis of Central Total Energy Systems at  
Military Facilities. (U)

DESCRIPTIVE NOTE: Interim rept.,  
AUG 77 72P Honig, E. M. , Jr.; Dolan,  
W. H. ;  
REPT. NO. CERL-IR-E-115  
PROJ: 4A762719AT41  
TASK: 06

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Energy management, \*Military  
facilities, \*Army planning, Energy consumption,  
Energy conservation, Systems engineering,  
Centralized, Electric power plants, Heating  
plants, Life cycle costs, Computerized simulation,  
Cost analysis, Economics  
IDENTIFIERS: Central total energy systems, WU013,  
AST41, PE62719A (U)

This report discusses the potential of central  
total energy (TE) systems for improving the  
efficiency and economies achieved using multiple  
regional TE systems. It also provides an energy  
and life-cycle cost analysis procedure for Corps  
District Engineer personnel and contracted  
architect-engineers to use in assessing the  
performance of central vs. regional TE systems.  
Part of the procedure involves application of  
computer-aided feasibility analysis to determine the  
number, size, and generic design of TE plants that  
will minimize total fuel consumption for given energy  
demands. The procedure also includes a method for  
determining the load for a central TE plant. A  
case study employing the method is presented. The  
report concludes that many Army installations have  
enough thermal demand to justify considering  
centralized TE applications for a large portion of  
the installation. Central TE plants can be  
economically advantageous over regional TE plants,  
due primarily to economies of scale in prime movers  
and secondarily increased load diversity. Central  
diesel plants with thermal storage were found to be  
most fuel-efficient, while central gas turbine plant (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 039062

AD-A044 455 5/3 9/2 10/1

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN ILL

A Study of the Technical Feasibility of Developing a Standardized Energy Control System Specifically for Army Facilities.

(U)

DESCRIPTIVE NOTE: Interim rept.,  
AUG 77 24P Eng.D. ;Wu,K. H. ;  
REPT. NO. CERL-IR-E-117  
PROJ: 4A762719AT41  
TASK: T6

UNCLASSIFIED REPORT

DESCRIPTORS: \*Energy management, \*Energy conservation, \*Energy consumption, Military facilities, Maintenance management, Military Microprocessors, Real time, Remote terminals, Scheduling, Cost benefits, Feasibility studies, Standardization, Cost effectiveness, Energy conversion

(U)

IDENTIFIERS: Energy control systems, WU010, AST41, PE62719A

(U)

IAC ACCESSION NUMBER: PL-900835

IAC DOCUMENT TYPE: PLASTIC -HARD COPY--

This report evaluates the feasibility of developing a standardized energy control system (ECS) for monitoring and controlling energy use in Army buildings and facilities. Criteria used in the evaluation were that the system must: Maximize use of off-the-shelf hardware; Use standard software programs and language; Use hardware and software modules which can be easily changed or expanded to insure the user maximum independence of the original equipment manufacturer; Provide reliable real-time facility monitoring and control functions for all types of equipment systems; Minimize number of personnel and skills required for operation; Maintain cost-effectiveness; and Be easy to operate. Results of the evaluation show that a standardized Army system for energy conservation is feasible and would be cost-effective. Available hardware can be used, but further development is needed to prepare necessary standardized software. The proposed standardized ECS consists of (1) microprocessor-based remot

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AD-A044 455

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PAGE

109

AD-A044 454

UNCLASSIFIED

099062

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A044 454 6/12

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN ILL

Management Summary: Hospital Equipment Maintenance System.

(U)

DESCRIPTIVE NOTE: Final rept.,  
AUG 77 52P Brown,David W. ;Colver, Richard J. ;  
REPT. NO. CERL-IR-P-83  
PROJ: 4A762719AT41  
TASK: T1

UNCLASSIFIED REPORT

DESCRIPTORS: \*Medical equipment, \*Maintenance management, Management information systems, Army equipment, Logistics management, Scheduling, Inspection, Replacement, Repair, Spare parts, Estimates, Life expectancy, Hospitals, Integrated systems

(U)

IDENTIFIERS: \*Hospital equipment maintenance system, \*Integrated facilities system, HEMS(Hospital Equipment Maintenance System), AST41, LPN-ENG-CERL-75-6, PE62719A, WU015

(U)

This report is a management summary of the capabilities provided by the Hospital Equipment Maintenance System (HEMS) and a preview of capabilities to be provided by the Facilities Engineering Equipment Maintenance System (FEEMS), for which HEMS is an operational pilot system. When extended as a Class A Army Standard System (scheduled for FY78), FEEMS will be an integrated module of the Integrated Facilities System (IFS). HEMS was developed for use by the installation-level Directorate of Facilities Engineering (DFAE) to support recurring maintenance activities on critical utility equipment and systems in Army hospitals and medical facilities. However, the system is equally applicable to utility systems and equipment throughout the entire installation. HEMS is designed to operate with the Integrated Facilities System (IFS) and uses several input transactions, code structures, and output documents common to IFS. To use HEMS, however, the DFAE must develop a thorough plan for recurring utilities

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099052

AD-A043 717 15/5 12/1

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILL

Modifications Processing Procedures: A  
Generalized Stochastic Network Model.

DESCRIPTIVE NOTE: Final rept.,  
AUG 77 27P  
REPT. NO. CERL-TR-P-82  
PROJ: A4161101A91D  
TASK: 04

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UNCLASSIFIED REPORT

DESCRIPTORS: \*Contract administration, \*Stochastic  
processes, \*Mathematical models, Computerized  
simulation, Modification, Government procurement,  
Contract proposals, Army Corps of Engineers,  
Network analysis(Management), Data processing,  
Construction, Cost analysis, Price index,  
Operations research, Management planning and  
control, Queueing theory, Statistical analysis  
IDENTIFIERS: \*Claims, PE61101A, AS91D,  
WU055

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This report discusses a generalized stochastic  
network model which incorporates the key features of  
the Corps of Engineers' contract modifications  
and claims processing procedures. The results of  
simulating the network model with two different  
levels of Resident Contracting Officer (RCO)  
authority are presented. The models and simulation  
provide a quantitative measure of the modifications  
and claims system's performance on which a  
quantitative evaluation of proposed system changes  
can be based. (Author)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A043 558 11/2 13/2

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILL

Evaluation of the Corrosion Resistance of  
Alternate Revetment Wire Fabric Materials  
in the Lower Mississippi River.

DESCRIPTIVE NOTE: Final rept.,  
JUL 77 62P  
REPT. NO. CERL-TR-M-221

(U)

UNCLASSIFIED REPORT

DESCRIPTORS: \*Wire, \*Fabrics, \*Revetments,  
\*Reinforced concrete, Stainless steel, Organic  
coatings, Carbon steels, Copper alloys, Zinc  
alloys, Corrosion resistance, High strength,  
Electrochemistry, Laboratory tests,  
Exposure(General), Brackish water, Fresh  
water, Mississippi River  
IDENTIFIERS: Stainless steel 201, Stainless steel  
301, Stainless steel 430, Stainless steel  
AM363

(U)

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This report presents the results of a study of the  
corrosion resistance and strength of alternate fabric  
materials for use in articulated concrete revetment  
mattresses to be placed on the lower banks of the  
Mississippi River. Three groups of materials-  
stainless steels, bimetals, and organically coated  
low-carbon steels-were evaluated based on short-term  
electrochemical laboratory tests, laboratory  
sensitization evaluations, and exposures of up to  
approximately 4 years in freshwater and 15 months in  
brackish water.

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AD-A043 717

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PAGE

110

AD-A043 558

UNCLASSIFIED

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A043 173 13/13 8/11 9/2

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLA Seismic Risk Simulation Model for Army  
Facilities: Phase One, Development of  
Deterministic Model.

(U)

DESCRIPTIVE NOTE: Special rept.,

AUG 77 104P Merritt, Ronald G. ;

REPT. NO. CERL-SR-M-223

PROJ: ILIR

TASK: A91D

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Earthquake resistant structures,  
\*Seismic waves, \*Risk analysis, Earthquakes,  
Intensity, Hazards, Buildings, Height,  
Military facilities, Army, Ground motion, Damage  
assessment, Computerized simulation, Costs,  
Repair, Replacement,  
Reinforcement (Structures), Reinforced concrete,  
Loads (Forces), Structural response, Cost  
analysis, Decision making, Computer applications,  
Algorithms

(U)

IDENTIFIERS: Lateral loads,

WURADCILIRA91D04048

(U)

This report describes the first phase in the  
development of a decision tool for assessing:  
(1) the seismic hazard to Army facilities and  
(2) the cost of mitigation schemes for reducing  
the hazard. A simulation model was developed to  
determine the cost of repairing damage to a facility  
resulting from seismic activity, as well as the cost  
of strengthening or replacing the facility to  
mitigate the effects of seismic activity. The cost  
to repair damage and the costs to strengthen and  
replace four-, seven-, and ten-story facilities are  
presented for three basic building configurations and  
a continuum of loads ranging from the 1968  
Structural Engineers Association of  
California Zone 3 requirements to a 1.0 g  
response spectrum. An example for use of the model  
is given, along with two decision methodologies.  
(Author)

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AD-A043 173

UNCLASSIFIED

PAGE

111

AD-A043 172

UNCLASSIFIED

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## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A043 172 15/5 12/1

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLA Prototype Procedure for the Local  
Generation of Facility Requirements.

(U)

DESCRIPTIVE NOTE: Interim rept.,

AUG 77 51P Dressel, David L. ; Brauer,  
H. ;

Roger L. ; Veneklasen, Wayne D. ; Burgess, John

REPT. NO. CERL-IR-D-80

PROJ: 4A762719AT41

TASK: T3

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Military engineering, \*Functional  
analysis, Prototypes, Military facilities,  
Construction, Maintenance management, Systems  
approach, Military requirements, Field conditions,  
Flow charting, Military training

(U)

IDENTIFIERS: Design, WJ001, AST41,  
PE62719A

(U)

This report describes a prototype procedure  
developed in the first phase of an ongoing study to  
develop tools and procedures for using organizations  
at the installation level to use in formulating  
functional requirements for facilities in the  
Military Construction, Army program. The  
requirements generation prototype procedure described  
in this report was developed in actual field test  
situations at three sites. The procedure consists  
of four phases-getting started, establishing facts,  
making judgements, and summarizing. The steps in  
each phase and the responsibilities of specific  
individuals and groups in each step are described, as  
is the training required for accomplishment of each  
phase. Future plans for testing and improving the  
prototype procedure are outlined. (Author)

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## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A043 171

13/2

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLCollecting Cost and Performance Data on  
Army New Air Pollution Control  
Equipment.

(U)

DESCRIPTIVE NOTE: Special rept.,

AUG 77 18P Struss, S. R.; Mikucki, W.

J. ;

REPT. NO. CERL-SR-N-25

PROJ: 4A162121A896

TASK: T2

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Air pollution control equipment,  
\*Boilers, \*Incinerators, Costs,  
Performance(Engineering), Emission control,  
Pollution abatement, Air pollution, Control,  
Reliability, Cost analysis, Scrubbers,  
Electrostatic precipitation, Bags, Cyclone  
separators, Particulates

IDENTIFIERS: Baghouses, WU005, AS896,  
PE62121A

This report outlines procedures for collecting data to conduct an air pollution control equipment cost analysis. It considers data in two basic categories: (1) data which can be collected automatically, such as power and water consumption, and (2) data which must be collected manually, such as labor and spare parts demands. The automatically collectable data are broken down into three types: (1) direct cost data (commissions), (2) operations data (collection efficiency, gas flow rate, and (3) performance data (availability, reliability). The systems presently available for extracting and handling these data are described and compared. These systems range from simple strip chart recorders to complex telemetry units. Criteria for choosing the appropriate system for a given cost study are given. Two systems for collecting data manually are discussed: (1) a log system and (2) a cost code system which would be compatible with the Z accounting system for operations and maintenance of Army facilities. Specific

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AD-A043 171

UNCLASSIFIED

PAGE

112

AD-A043 170

UNCLASSIFIED

099062

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A043 170

21/5

10/2

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLStationary Gas Turbine-Generator Set  
Acceptance Testing Procedures, Methods, and  
Instructions.

(U)

DESCRIPTIVE NOTE: Special rept.,

AUG 77 28P Takemori, E. M.; Lee, S.

W. ;

REPT. NO. CERL-SR-E-116

PROJ: 4A763734DT08

TASK: 04

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Gas turbines, \*Electric generators,  
Acceptance tests, Military requirements,  
Standards, Military facilities, Test methods,  
Electric power plants, Flow charting, Lubrication,  
Installation, Demonstrations

IDENTIFIERS: WU001, AST04, PE63734A

This report establishes procedures for acceptance testing gas turbine-generator sets intended for installation in fixed military facilities. The new test procedures, numbered CE-TP-2001 through 2003, are designed for use by Corps of Engineers Division and District personnel. Also included are lists of MIL-STD-705B test methods and Corps of Engineers diesel engine generator set test procedures that apply directly to acceptance testing gas turbine-generator sets. (Author)

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## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099052

AD-A042 873 13/13

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLGuidelines for Evaluating the Seismic  
Resistance of Existing Buildings. (U)

DESCRIPTIVE NOTE: Final rept..

JUL 77 134P Lybas, John M. ;

REPT. NO. CERL-TR-M-213

PROJ: 4A762719AT41

TASK: T4

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Buildings, \*Seismic waves,  
\*Structural response, Structural properties,  
Ductility, Elastic properties, Damping,  
Computerized simulation, Resistance, Structural  
engineering, Steel, Reinforced concrete, Masonry,  
Failure (Mechanics), Earthquakes, Mathematical  
models

IDENTIFIERS: PE62719A, AST41, WU003

This report presents a methodology for evaluating  
an existing building's seismic resistance. The  
method uses a design response spectrum and modal  
analysis techniques to compute a linearly elastic  
structural response. This is compared to the  
structure's yield capacity to obtain a factor  
denoting the structure's required energy dissipation  
capacity. Charts suitable for design office  
application are provided for use in estimating the  
levels of structural damping and ductility consistent  
with the required energy dissipation. Various  
structural characteristics pertinent to the  
building's suitability for seismic loading are  
discussed. The method compares these structural  
characteristics to the computed structural damping  
and ductility to reach a judgement concerning the  
likelihood of structural failure during an  
earthquake. Several appendices are included to  
provide additional technical support for the  
methodology. (Author)

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## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A042 665 9/2

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILL

Field Participation in CAEADS. (U)

DESCRIPTIVE NOTE: Final rept..

JUL 77 26P Sadoff, Laurence R. ;

REPT. NO. CERL-Technical Ms-ADS-4

PROJ: 4A763734DT08

TASK: 01

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Computer aided design, Architects,  
Engineers, User needs, Computer graphics,  
Catalogs, Interactions, Planning, Input

(U)

(U)

IDENTIFIERS: CAEADS project, WU005, AST08,  
PE63734A

This manuscript documents the interaction of the  
Computer Aided Engineering and Architectural  
Design System (CAEADS) staff with Corps of  
Engineers field organizations and describes the  
active field participation in the CAEADS project.  
The forms of field/staff interaction and their  
results to date are discussed. The CAEADS  
experience described in this report demonstrates the  
positive benefits of soliciting and incorporating  
field input into research projects conducted by  
Corps laboratories. (Author)

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AD-A042 873

UNCLASSIFIED

PAGE

113

AD-A042 665

UNCLASSIFIED

099062



## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A042 629 13/2

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILL

Recommended Design Criteria for Wastewater  
Treatment at Proposed Consolidated Tactical  
Vehicle Wash Facility, Fort Drum, NY.

(U)

DESCRIPTIVE NOTE: Interim rept.,

JUL 77 64P Benson, L. J. ; Staub, M. ;

Fileccia, R. ; Matherly, J. ;

REPT. NO. CERL-IR-N-26

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: See also report dated Jun 76, AD-  
A025 173.

DESCRIPTORS: \*Waste water, \*Vehicles, Cleaning,

Sanitary engineering, Army equipment, Water

pollution abatement, Discharge, Drainage, Cost

estimates, Army training, Water filters,

Sedimentation, New York

IDENTIFIERS: Fort Drum

(U)

(U)

Tracked vehicle washrack discharge, were surveyed  
at Fort Drum, NY, to determine design criteria  
for wastewater treatment at a proposed consolidated  
tactical vehicle wash facility. These design  
criteria include recommended sizing of the various  
treatment components as indicated by the  
characteristics of the wastewater analyzed during the  
study. Wastewater treatment components include a  
sedimentation basin equipped for mechanical free oil  
removal followed by a flow equalization basin and  
intermittent sand filtration. (Author)

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AD-A042 629

UNCLASSIFIED

PAGE

114

AD-A042 628

UNCLASSIFIED

099062

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A042 628 13/3 14/1

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILL

Corrosion Costs of Air Force and Army  
Facilities and Construction of a Cost  
Prediction Model.

(U)

DESCRIPTIVE NOTE: Final rept. 1 Jul 75-30 Oct 76,

JUL 77 71P Hahn, Christopher ;

REPT. NO. CERL-TR-M-224

PROJ: 4A762719AT41

TASK: T7

MONITOR: AFCEC TR-77-17

UNCLASSIFIED REPORT

DESCRIPTORS: \*Construction materials, \*Corrosion,

\*Cost analysis, Mathematical models, Air Force

facilities, Army, Military facilities, Soils,

Costs, Construction, Electrical conductivity,

Air pollution, Energy consumption, Climate,

Topography, Predictions, Water pollution

(U)

(U)

IDENTIFIERS: WU001, ASI41, PE62719A

The facility maintenance organizations of several  
Air Force and Army installations were analyzed  
to determine the percentage of their direct  
maintenance, repair or replacement efforts that were  
corrosion-related. Also included were the costs of  
designing and inspecting corrosion-related  
construction projects. This raw data was processed  
and correlated with climatological, geographic and  
environmental statistics to develop a predictive  
corrosion cost model. The resulting empirical  
equations are able to predict facility corrosion  
costs and classification with reasonable accuracy as  
a function of installation dimensions and capacities,  
and readily obtainable weather, soil and air quality  
data. (Author)

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UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A042 582 13/2 5/1 9/2 5/2

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN ILL

Automated Pavement Maintenance and Repair Management System.

(U)

DESCRIPTIVE NOTE: Interim rept.,

JUN 77 85P Shahin, Mohamed Y. ; Rozanski,

Francine M. ;

REPT. NO. CERL-IR-C-79

UNCLASSIFIED REPORT

DESCRIPTORS: \*Pavements, \*Management information systems, \*Management planning and control, \*Data bases, \*Computer applications, \*Information retrieval, Maintenance, Repair, Facilities, Scheduling, Computer programs

IDENTIFIERS: Paver system, Integrated facilities system

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This report describes the use of a computer system designed to aid the facilities engineer in managing pavement maintenance and repair. The system, called PAVER, consists of a computer data base for storage of relevant pavement information, forms for collecting data, and a set of report-generator programs to retrieve information from the data base in an organized format. Adoption of the system will help the facilities engineer achieve the following benefits: prevention of over- or under-maintenance of pavements, more efficient utilization of funds, more efficient scheduling of maintenance activities, rapid retrieval of pavement information (especially important in determining work requirements for submission to the shop or contractor), and documentation of pavement performance. Procedures are presently being developed to interface PAVER with the Integrated Facilities System (IFS).

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UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A042 580 15/5 13/13 5/5

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN ILL

Fort Lee Enlisted Personnel Dining Facility Modernization Evaluation Program.

(U)

DESCRIPTIVE NOTE: Final rept.,

JUL 77 76P Burgess, J. M. ;

REPT. NO. CERL-TR-D-77

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: See also Rept. nos. CERL-TR-D-1, AD-760 185 and CERL-TR-D-38, AD-A003 828.

DESCRIPTORS: \*Dining halls, \*Army operations,

\*Military facilities, Consumers, Enlisted

personnel, Rehabilitation, Questionnaires

IDENTIFIERS: Decor catalogs

(U)

(U)

Seven enlisted personnel dining facilities at Fort Lee, VA, were studied prior to and after being modernized based on guidance in the Decor Catalog for Dining Facilities (U.S. Army Construction Engineering Research Laboratory (CERL) Technical Report D-1/AD760 185, 1972). Oral and written questionnaires were used to measure soldiers' satisfaction before and after renovation. Responses indicated that modernization resulted in universal improvement in consumer satisfaction. Results also indicated that once the elements of the dining environment primarily responsible for dissatisfaction have been eliminated, type of decor scheme and alternative seating arrangements become salient consumer issues. In response to these requirements, a new and expanded Decor Guide for Enlisted Personnel Dining Facilities (CERL Technical Report D-38/ADA003 828, 1974) was prepared and introduced to Army food advisers and facility engineers.

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AD-A042 582

UNCLASSIFIED

PAGE

115

AD-A042 580

UNCLASSIFIED

099062

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A042 579 20 6 17 2 18/6

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN ILL

State of the Art in Fiber Optics Communications and Data Transfer

(U)

DESCRIPTIVE NOTE: Internal report.  
JUL 77 42P McCormack, R. G.; Croissant, W. J.; Lam, P. C.  
REPT. NO. CERL-IR-E-111  
PROJ: 4A762719A140  
TASK: A1

UNCLASSIFIED REPORT

DESCRIPTORS: \*Fiber optics, \*Optical communications, \*Data transmission systems, Radiation hardening, Nuclear radiation, Light emitting diodes, Broadband, Data links, Electronics, Interfaces, All weather, Range (Distance), Electromagnetic pulses, Bibliographies  
IDENTIFIERS: WU022, AS740, PE62719A

This report addresses the state of the art of fiber optic communications as related to U.S. Army Corps of Engineers military construction. It discusses the general capabilities of commercially available fiber optics and summarizes the research and development work being done in the area by other agencies. Potential Corps of Engineers usage of fiber optics is discussed, and nuclear radiation hardening aspects are summarized. Interfacing optical fibers with electronics is discussed along with factors which limit the performance of fiber optics data transmission links. (Author)

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AD-A042 579

UNCLASSIFIED

PAGE

116

AD-A042 578

UNCLASSIFIED

099062

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A042 578 13/1 10/1 21/2 13/2

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN ILL

Technology Evaluation of Army-Scale Waste-to-Energy Systems.

(U)

JUL 77 85P Hathaway, S. A.; Dealy, R. J.;  
REPT. NO. CERL-IR-E-110  
PROJ: 4A762719A141  
TASK: T6

UNCLASSIFIED REPORT

DESCRIPTORS: \*Waste management, \*Energy conversion, \*Fuels, \*Incinerators, Pyrolysis, Anaerobic processes, Digestion (Biology), Gases, Liquids, Waste recycling, Solid wastes, Shredding, Military facilities, Army, Furnaces, Boilers, Modular construction, Compatibility, Fluidized bed processes, Combustion, Methane, Earth fills, Recovery, Energy management, State of the art, Technology, Assessment, Army planning  
IDENTIFIERS: Refuse derived fuels, Anaerobic digestion, Supplementary fields, Stokers, Design, Mass burning, WU011, AST41, PE62719A

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(U)

IAC ACCESSION NUMBER: PL-900716  
IAC DOCUMENT TYPE: PLASTIC -HARD COPY--  
This investigation evaluated current and emerging technologies for the converting waste to energy in applications scaled for use on Army fixed facilities and installations. Technologies reviewed include: mass burning of wastes in package (mudburn) and field-erected systems; use of refuse-derived fuel (RDF) in new combustion capital and as a supplementary fuel in existing Army-scale central steam generators; pyrolytic conversion of waste to a gaseous and liquid fuel; and anaerobic digestion of wastes to a fuel gas. The report includes application of a rating system for candidate technologies which considers dependability, practicability, conservation, environmental compatibility, economics, and length of operational history. Use of package waste-to-energy systems and use of RDF as a supplementary boiler fuel are treated in detail. Fully satisfactory methods of

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A042 429 18 6 20/6

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLThe Effects of Fast and Thermal Neutron  
Flux and Gamma Radiation on the Transmission  
Characteristics of Optical Fibers.

DESCRIPTIVE NOTE: Interim rept.,

JUL 77 23P Sieder, D. C.; McCormack,

R. G.; Croissant, A. J.;

REPT. NO. CERL-IR-E-112

PROJ. 4A762719AT40

TASK: A1

(U)

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Fiber optics transmission lines.  
\*Radiation damage. \*Light transmission. Neutron  
flux. Fast neutrons. Thermal neutrons. Gamma rays.  
Fibers. Radiation attenuation.  
Luminescence. Fused silica. Lead compounds.  
Silicates. Boron compounds. Cladding. Plastic  
IDENTIFIERS: WU022. ASTM. PEN2719A (U)  
(U)

This report presents the results of a study of the  
effects of nuclear radiation on the light  
transmission characteristics of optical fibers. Two  
types of radiation were used: 1800-MW pulses of  
primarily thermal neutrons (10 to the 12th power n/  
sq/cm) and a 20-megarep exposure of thermal and  
fast neutrons and gamma radiation. Three  
representative types of optical fibers were tested:  
low-loss fused silica rod-in-tube lead silicate with  
boron fluoride cladding and plastic. The fibers'  
radiation-induced attenuation changes and  
luminescence were monitored. Thermal neutrons were  
found to induce both attenuation increases and  
luminescence in all three fiber types. Fibers made  
of lead silicate with borosilicate cladding were  
found to develop a permanent attenuation increase of  
greater than 300 dB/km, making the fiber useless  
for most communication systems. (U)

AD-A042 429

UNCLASSIFIED

PAGE

117

AD-A042 313

UNCLASSIFIED

099062

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A042 313 13/11 13/2

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLInvestigation of Plastic Pipe for Use by the  
Corps of Engineers.

DESCRIPTIVE NOTE: Final rept.,

JUL 77 43P Smith, Alvin;

REPT. NO. CERL-IR-M-219

PROJ. 4A762731AT41

TASK: T7

MONITOR: GIDEP E082-2659

(U)

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Pipes. \*Sanitary engineering.  
Thermoplastic resins. Plastic properties. Sewage.  
Drainage. Construction materials. Acceptance  
tests. Water hammer. Military engineering. User  
needs  
IDENTIFIERS: \*Plastic pipes. Plumbing supplies.  
AST41. WU008. PE62731A (U)  
(U)

IAC ACCESSION NUMBER: PL-027134  
IAC DOCUMENT TYPE: PLASTIC-HARD COPY--  
ASTM, ANSI, and NBS standards and  
specifications for various plastic pipe, fittings,  
and related materials are included. (Author,  
modified-PL). (U)

IAC SUBJECT TERMS: P--(U)Plastic pipe. Pipe.  
Sanitary engineering. Sewage sludge. PVC. ABS.  
Polyethylenes. CPVC. Polypropylenes. Polybutylenes.  
Standards. Specifications. Military applications. Zz  
Unlimited.;

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A042 312 13/13 15/7

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILL

Alternative Theater of Operations Building  
Systems. (U)

DESCRIPTIVE NOTE: Special rept.,

JUL 77 94P Kao, A. M.; Cook, Jene;

REPT. NO. CERL-SR-C-80

PROJ: 4A763734DT07

TASK: 06

UNCLASSIFIED REPORT

DESCRIPTORS: \*Structural engineering, \*Theater level  
operations, \*Buildings, \*Shelters Fiberglass,  
Pipes, Paperboard (U)

IDENTIFIERS: Foam wood panelized building, (U)

Fiberglass-reinforced paperboard building, Pipe-  
frame building system, AST07, WU002, PE63734A (U)

This report documents the findings resulting from fabricating and erecting two prototype building systems--a fiberglass-reinforced paperboard building and a pipe-frame building system. The results indicate that the pipe-frame building concept has potential for use in the theater of operations (TO) if the required construction skills and materials are made more compatible with those expected to be available in the TO. The fiberglass-reinforced paperboard building has not weathered satisfactorily. The costs of both systems are reasonable compared to those of selected Army Facilities Components System facilities. This report also summarizes a study on development of new building concepts. It is believed that several of the concepts developed in the study can be developed into effective systems for use in a TO. Finally, this report presents the results of a performance inspection of an experimental foam wood panelized building during its first year in service. The results indicate that the building has weathered satisfactorily except for rainwater seepage along the joints, which can be prevented by caulking along the joints. (Author) (U)

AD-A042 312

UNCLASSIFIED

PAGE

118

AD-A042 179

UNCLASSIFIED

099062

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A042 179 13/13 13/4 15/3

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILL

Shipping Containers as Structural  
Systems. (U)

DESCRIPTIVE NOTE: Final rept.,

JUL 77 34P McDowell, E. L.;

REPT. NO. CERL-TR-C-77

PROJ: 4A763734DT34, 4A6647170895

TASK: 04

UNCLASSIFIED REPORT

DESCRIPTORS: \*Shipping containers, \*Structural  
engineering, \*Military facilities, Theater level  
operations, Finite element analysis, Laboratory  
tests, Field tests, Stresses,  
Strain(Mechanics), Loads(Forces),  
Strength(Mechanics), Shelters  
IDENTIFIERS: \*Structural elements, WU001, AS895,  
AST34, PE64717A, PE63734A (U)

This report investigated the feasibility of (1) using shipping containers (MILVAN) as structural elements in the construction of theater of operations (T/O) facilities, and (2) using dedicated containers in the T/O for the dual purpose of logistics and shelter. Mathematical structural modeling via finite element analysis, laboratory tests, and field tests were used to validate the concept of using shipping containers as structural elements in the construction of T/O facilities. The most effective configuration was an 80-ft (24-m) box beam configuration formed by joining four MILVANS end to end. Used as a roof system, these box beams and the facilities constructed from them meet wind and snow design loads encountered at any location in the world. For a typical logistic port base study exercise, facilities constructed from shipping containers showed an actual savings of \$2.3 million and 1.5 battalion months of engineering effort over steel-framed Army Facilities Component System (AFCS) facilities. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099052

AD-A042 178 10/1 5/3 14/1

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN ILL

Market Evaluation Study: Solar Heating and Domestic Hot Water Heating in DOD Buildings.

(U)

DESCRIPTIVE NOTE: Final rept.,

JUL 77 30P Windingland, L. M.; Martel, C.;

REPT. NO. CERL-TR-E-114

UNCLASSIFIED REPORT

DESCRIPTORS: \*Economic analysis, \*Solar heating, Hot water, Heating, Commerce, Cost analysis, Department of Defense, Facilities, Buildings

(U)

IDENTIFIERS: Solar space heating, Solar domestic hot water heating, Solar hot water heating, Energy utilization index

(U)

This study assesses the potential market for combined solar space heating and domestic hot water heating in Department of Defense (DOD) buildings. The study considers eight building categories: family housing, bachelor enlisted quarters, bachelor officers' quarters, administration, training, operational, community support, and recreational, which together contain 683 million sq ft (61.5 million m<sup>2</sup>), or 40 percent of the DOD inventory. All buildings were assumed to be oil heated. The buildings were grouped by climatological/solar regions, and the loads for each building type were determined by using the Energy Utilization Index (EUI) method. Solar system performance in each region was obtained by using the U.S. Army Construction Engineering Research Laboratory universal curve method. The life-cycle costs of providing solar space heating and domestic hot water heating were analyzed, and the DOD market potential for installed solar system costs of \$9, \$15, and \$20 per square foot were determined. The study shows that at an estimated initial fuel cost of \$3.50 MBtu for oil heating, a 10 percent cost of money, and an 8.5 percent overall fuel inflation factor, solar systems for space heating and domestic hot water heating become (U)

AD-A042 178

UNCLASSIFIED

PAGE

119

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A041 450 9/1 14/2

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN ILL

Radio Frequency Shielding Tests of System Technology Test Facility at Meck Island, Marshall Islands.

(U)

DESCRIPTIVE NOTE: Final rept. 16 Aug-15 Oct 76,

JUN 77 119P Nielsen, P. H.;

REPT. NO. CERL-SR-E-107

UNCLASSIFIED REPORT

Availability: Microfiche copies only. DESCRIPTORS: \*Shielding, \*Attenuation, \*Electromagnetic shielding, \*Test facilities, Radiofrequency, Leakage (Electrical), Detection, Kwajalein Atoll

(U)

IDENTIFIERS: \*Radiofrequency shielding, \*Radiofrequency attenuation, Sniffer tests

(U)

This report presents the results of tests and inspections performed to verify the shielding integrity of the newly constructed Systems Technology Test Facility (STTF) on Meck Island, Kwajalein Atoll, Marshall Islands. Recommendations for improvement of the structure's effectiveness, including suggested maintenance techniques and recommendations for additional testing, are presented. The report also evaluates the radio frequency (RF) shielded enclosure leak detection (sniffer) test technique for determining the shielding performance of a structure. (Author)

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AD-A041 450

UNCLASSIFIED

099062

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A041 339

11/2

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLCorrosion Behavior of Steel Fibrous  
Concrete.DESCRIPTIVE NOTE: Final rept.,  
MAY 77 37P Morse, D. C.; Williamson, G.

R. ;

REPT. NO. CERL-TR-W-217

PROJ: 4A762731AT41

TASK: T7

(U)

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Reinforced concrete, \*Steel, \*Fiber reinforcement, Corrosion, Sea water corrosion, Cracks, Cracking (Fracturing), Fatigue (Mechanics), Mechanical properties

IDENTIFIERS: \*Steel fibrous concrete, WU003, ASI41, PE2731A

This report presents the results of an investigation into four aspects of the corrosion behavior of steel fibrous concrete: (1) The behavior of cracked and uncracked metallic and nonmetallic fibrous concrete subjected to a natural wet-dry, freeze-thaw saltwater environment; (2) The effect of crack width on the corrosion of fibers bridging the crack; (3) The effect of various durations of exposure to a corrosive environment on constant-crack-width and uncracked steel fibrous concrete specimens; and (4) The effect of fatigue. Results indicate that good quality, air-entrained, uncracked steel fibrous concrete does not experience any undesirable strength changes when subjected to a seawater environment for up to 1.5 years. Results also indicate that unworking cracks less than 0.01 in. (0.25 mm) wide do not provide sufficient passageway for corrosive liquids to cause corrosion of the fibers bridging the crack, while fibers bridging larger cracks can be expected to corrode. The fatigue behavior of uncracked, good quality, air-entrained steel fibrous concrete at 65 percent of the first cracked stress level was found to be unaffected by exposure to a saltwater environment. (Author)

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AD-A041 339

UNCLASSIFIED

PAGE

120

AD-A041 331

UNCLASSIFIED

099062

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A041 331

15/5

14/1

5/1

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLConsolidation of RPMA at Fayetteville, NC.  
Volume IV. General Procedures for  
Conducting RPMA Consolidation Studies.

(U)

DESCRIPTIVE NOTE: Final rept.,  
JUN 77 169P Brown, David W.; May, Joyce

L.; Kirby, Jeffrey G. ;

REPT. NO. CERL-TR-C-73-Vol-4

## UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: See also Volume 1, AD-A033 754.

DESCRIPTORS: \*Military facilities, \*Maintenance management, \*Cost analysis, Centralized, North Carolina, Joint military activities, Feasibility studies, Management information systems, Resource management, Decision making, Economic analysis, Methodology, Management planning and control, Logistics support, Maintenance equipment, Army, Air Force, Military planning, Manpower utilization, Maintenance, Cost effectiveness, Savings

(U)

IDENTIFIERS: Real property, Fayetteville (North Carolina), Fort Bragg, Pope Air Force Base, Consolidation

(U)

This report presents general procedures for conducting a feasibility analysis for consolidating real property maintenance activities (RPMA) at military installations. The procedures are based on the cost analysis conducted by the U.S. Army Construction Engineering Research Laboratory as part of the RPMA consolidation study for Fort Bragg and Pope AFB, Fayetteville, NC. The report presents the initial planning required and the concepts necessary to compare the current method of operation of the existing facilities engineering organizations with that of the proposed Army RPMA consolidated organization. The procedures are based on the assumption that the Army is the lead service for the consolidation and that Army policies will be used. Although based on Army and Air Force RPMA data, the procedures should be generally applicable to the Navy. Suggestions for the

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A041 188 5/5 9/2

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILL

Development of an Objective Definition of  
Habitability and a Habitability Data  
Base.

(U)

DESCRIPTIVE NOTE: Final rept.,

JUN 77 35P Brauer, Roger L. ; Davis,

Thomas A. ;

REPT. NO. CERL-SR-D-79

PROJ: 4A762719AT03

TASK: 01

UNCLASSIFIED REPORT

DESCRIPTORS: \*Human factors engineering,  
\*Habitability, \*Data bases, Data reduction,  
Performance(Human), Morale, Military  
facilities, Construction, Computer applications  
IDENTIFIERS: WU001, AST03, PE62719A

(U)  
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This report summarizes the work performed in two  
areas: development of an objective definition of  
habitability and development of a habitability data  
base. Although it has been assumed that an  
absolute, objective definition of habitability cannot  
be reached because of the subject's dynamic nature,  
considerable progress has been made in developing a  
definition which provides a means for dealing  
systematically with habitability data. The  
prototype Habitability Data Base which has been  
developed provides a way of collecting, analyzing,  
storing, and retrieving such data. Recommendations  
for continuing development in both areas are also  
presented. (Author)

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UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A041 187 5/5

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILL

Concepts for the Generation, Communication, and  
Evaluation of Habitability Criteria.

(U)

DESCRIPTIVE NOTE: Final rept.,

JUN 77 34P Brauer, Roger L. ; Dressel,

David L. ;

REPT. NO. CERL-SR-D-78

PROJ: 4A762719AT41

TASK: 03

UNCLASSIFIED REPORT

DESCRIPTORS: \*Human factors engineering,  
\*Habitability, Criteria, Military facilities,  
Architecture, Performance(Human), Morale,  
Army planning, Construction, Standards,  
Information exchange  
IDENTIFIERS: Design, AST41, WU006,  
PE62719A

(U)  
(U)

This report presents background information and  
concepts concerning the generation, evaluation, and  
communication of habitability criteria.  
Interactions between habitability criteria and  
facility delivery and use are discussed. The  
concepts presented form a basis for developing  
procedures relating personnel requirements to  
architectural requirements in the Army facility  
delivery and use process. (Author)

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## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A040 789 13/13

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLInflation/Foam/Shotcrete System for Rapid  
Shelter Construction.

(U)

DESCRIPTIVE NOTE: Final rept.,

MAY 77 26P Williamson, G. R. ; Smith, A.

; Morse, D. ; Woratzeck, M. ; Barrett, H. ;

REPT. NO. CERL-TR-W-215

PROJ: 4A162719AT41

TASK: 05

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Shelters, \*Inflatable structures,

\*Foam, Theater level operations,

Domes (Structural forms), Hemispheres,

Hardening, Construction, Construction materials,

Expanded plastics, Sprays, Polyurethane resins,

Reinforced concrete, Steel, Metal fibers, Fire

resistant materials, Impact strength, Underground,

Costs, Economics

IDENTIFIERS: WU001, AST41, PE62719A

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IAC ACCESSION NUMBER: PL-026303

IAC DOCUMENT TYPE: PLASTIC -HARD COPY--

This report discusses an inflation/foam/shotcrete  
system for constructing hardened shelters in the  
theater of operations. The method was found to be  
rapid and low-cost, with a low skill levelrequirement. Five hemispherical domes of varying  
sizes and foam thicknesses were constructed and  
tested to determine their resistance to fire,ballistics, and simulated burial. Costs, man-hours,  
and skill levels required for construction are  
discussed. (Author)

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IAC SUBJECT TERMS: P--(U)Costs-Shell structures,

Inflatable structures-Military applications,

Concrete/Steel-Structures, Expanded plastics-

Repair, Unethane-Patching, Foam in place-FRP/

polyester/Unethane, Construction-Hemispheres, ZZ

Unlimited.

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A040 758 13/13 5/1

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLEffective Use of Systems Building  
Technology: Open Systems Catalog.

Volume III. Building Products

Information.

(U)

DESCRIPTIVE NOTE: Final rept.,

JUN 77 94P Kenney, Thomas A. ;

REPT. NO. CERL-SR-D-73-Vol-3

PROJ: 4A762719AT02

TASK: 01

## UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: See also Volume 1, AD-A040  
756.

DESCRIPTORS: \*Construction, \*Construction materials,

\*Management information systems, \*Catalogs,

Computer applications, Systems engineering,

Maintenance, Military facilities, Cooling and

ventilating equipment, Lighting equipment,

Electronic equipment, Electrical equipment,

Compatibility, Specifications

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IDENTIFIERS: Industrial buildings, Partitions,

WU002, AST02, PE62719A, Subsystems

This Building Products Information is  
intended to be an aid in the use of advanced building  
technology and methods. This document can best be  
utilized in connection with its companion volumes ofEffective Use of Systems Building  
Technology: Open Systems Catalog-Vol I,

Open Systems Guide and Vol II, Prototype

Performance Specifications. This document

includes a Data Summary developed from a survey

of selected open systems projects and industrialized

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subsystem manufacturers.

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A040 757 13/13 13/3 5/1

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILL

Effective Use of Systems Building  
Technology: Open Systems Catalog.  
Volume II. Prototype Performance  
Specifications.

(U)

DESCRIPTIVE NOTE: Final rept.,

JUN 77 127P Schneider, Richard L. ;  
REPT. NO. CERL-SR-D-73-Vol-2  
PROJ: 4A762719AT02  
TASK: 01

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: See also Volume 3, AD-A040  
758.

DESCRIPTORS: \*Construction, \*Specifications,  
\*Catalogs, \*Construction materials, \*Management  
planning and control, Office buildings, Military  
requirements, Heating, Lighting equipment,  
Management information systems, Cooling and  
ventilating equipment, Electrical equipment,  
Electronic equipment, Military facilities, Systems  
engineering  
IDENTIFIERS: Classrooms, Partitions, WU002,  
AST02, PE62719A

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This volume of performance specifications is  
intended to be an aid in the use of advanced building  
technology and methods. This document is intended  
to be utilized in conjunction with its companion  
volumes of Effective Use of Systems Building  
Technology: Open Systems Catalog-Vol  
I. Open Systems Guide, and Vol III.  
Building Products Information. Included in  
this document are prototype performance  
specifications for office and classroom spaces, which  
were developed and organized from previously  
published specifications and specification guides.  
Specifications are outlined in terms of structure;  
interior partitions; heating, ventilation, and  
cooling; lighting-ceiling; and electrical-electronic  
subsystems.

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AD-A040 757

UNCLASSIFIED

PAGE

123

AD-A040 756

UNCLASSIFIED

099062

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A040 756 13/13 13/3 5/1

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILL

Effective Use of Systems Building  
Technology: Open Systems Catalog. Volume  
I. Open Systems Guide.

(U)

DESCRIPTIVE NOTE: Final rept.,

JUN 77 112P Csizmadia, Tibor D. ;  
REPT. NO. CERL-SR-D-73-Vol-1  
PROJ: 4A762719AT02  
TASK: 01

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: See also Volume 2, AD-A040  
757.

DESCRIPTORS: \*Construction, \*Construction materials,  
\*Management planning and control, Procurement,  
Military requirements, Catalogs, Quality control,  
Systems engineering, Cost benefits, Maintenance,  
Military facilities, Computer applications,  
Management information systems, Prefabricated  
buildings, Compatibility  
IDENTIFIERS: Industrial buildings, WU002, AST02,  
PE62719A, Subsystems

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Relatively recent advances in building technology  
and in the application of innovative procurement  
methods make it possible to introduce precoordinated  
subsystems into military construction. Existing  
data suggest that the time-cost-quality advantages of  
applying such technology and methods to military  
construction are significant. To facilitate the use  
of alternative technology and procurement methods,  
current and practical information must be made  
available to project personnel. This report  
provides such information on available products,  
processes, and methods, along with guidelines for  
their effective use in military construction. A  
review of product data revealed that the products  
integrated into most systems were not universally  
interchangeable (i.e., a completely open system),  
but rather that their 'openness' was largely limited  
to each particular program. While there are common  
elements for most, if not all, of the products, the  
fact remains that not all of the products are freely  
interchangeable; consequently, a guide for complete

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A040 744 13/1 20/13

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN ILL

Use of the Building Loads Analysis and System Thermodynamics Program to Perform Total Energy System Analysis.

(U)

DESCRIPTIVE NOTE: Interim rept.,  
JUN 77 19P Hittle, Douglas C. ;  
REPT. NO. CERL-IR-E-108  
PROJ: 4A762719AT41  
TASK: T6

UNCLASSIFIED REPORT

DESCRIPTORS: \*Energy management, \*Computer programs, \*Thermodynamics, Energy, Buildings, Energy consumption, Systems analysis, Heating, Cooling, Life cycle costs, Construction, Civil engineering, Mechanical engineering  
IDENTIFIERS: \*Total energy, Selective energy systems, Blast computer program, WU012, AST41, PE62719A

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(U)

This report describes a systematic procedure for applying the Building Loads Analysis and System Thermodynamics (BLAST) computer program to perform energy and life-cycle cost analyses of conventional, total energy, and selective energy systems as they might be applied to meet the energy demands of buildings or groups of buildings. The iterative application of this computer tool to permit the selection of nearly optimal candidate systems is described, and use of the program to estimate the performance of specific components during final plant design is outlined. The BLAST program and methods for its effective use are designed to support the engineering efforts required to implement guidance issued by the Office of the Chief of Engineers (Engineering Instructions for Preparation of Feasibility Studies for Total Energy, Selective Energy, and Heat Pump Systems, 1 July 1975). In addition to the prediction of space energy demand and the simulation of various air distribution systems, the BLAST program can simulate the performance of central energy supply systems consisting of any or all of the following components: diesel engine generators, gas turbine

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AD-A040 744

UNCLASSIFIED

PAGE

124

AD-A040 743

UNCLASSIFIED

099062

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A040 743 13/2

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN ILL

Design Features of Package Incinerator Systems.

(U)

DESCRIPTIVE NOTE: Interim rept.,  
MAY 77 31P Hathaway, S. A. ;  
REPT. NO. CERL-IR-E-106  
PROJ: 4A062103A891  
TASK: Q3

UNCLASSIFIED REPORT

DESCRIPTORS: \*Incinerators, \*Waste disposal, \*Solid wastes, Packaging, Site selection, Military facilities, Army planning, Sanitary engineering, Technology transfer, Ratings, Pollution abatement  
IDENTIFIERS: Design, WU002, AS891, PE62103A

(U)

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IAC ACCESSION NUMBER: PL-900714

IAC DOCUMENT TYPE: PLASTIC -MICROFICHE--

This report summarizes information collected in the early stages of a project to evaluate current small-scale solid waste incineration technologies for use at Army fixed facilities and installations. Information gathered through literature review, field observation, and contact with manufacturers and vendors is presented. Subjects covered include basic plant design requirements, site selection, waste receipt and handling, ash handling and disposal, instrumentation and controls, operation and maintenance, personnel facilities, safety, and pollution abatement. A technical description of each currently marketed package incinerator configuration (controlled air, rotary-kiln, basket-grate, and augered-bed combustor) is given. Application of a comparable performance rating system shows that none of the four package incinerators currently available can be confidently recommended as a reliable, cost-effective method of handling solid waste generated at Army installations. A program of continued evaluation of currently operating plants coupled with field tests of candidate units on Army solid waste is encouraged. (Author)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A040 742 13/13 5/1 14/1

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLMilitary Construction Supervision and  
Administration Cost Forecasts.

(U)

DESCRIPTIVE NOTE: Final rept.,

MAY 77 43P O'Connor, Michael J. ;

Thompson, Bruce ;

REPT. NO. CERL-TR-P-80

UNCLASSIFIED REPORT

DESCRIPTORS: \*Construction, \*Management planning and control, \*Cost analysis, Mathematical prediction, Estimates, Regression analysis, Forecasting, Maintenance, Statistical analysis, Supervision, Administrative personnel, Rates, Variables, Curve fitting

(U)

This report presents a statistical model for forecasting supervision and administration (S and A) costs to aid the Directorate of Military Construction, Office of the Chief of Engineers, in establishing yearly limits for Corps of Engineers Division/District S and A rates. Data for 12 military construction Divisions/Districts from fiscal year 1963 (FY63) through FY76 were analyzed. A statistically significant model for 10 Districts was developed and verified using a retrospective test. S and A costs/rates for FY77 and FY78 were predicted as a function of the estimated work placement. (Author)

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AD-A040 742

UNCLASSIFIED

PAGE

125

AD-A040 741

UNCLASSIFIED

099062

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A040 741 13/13 20/11 11/6

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLA Unified Approach for Modeling Inelastic  
Behavior of Structural Metals under Complex  
Cyclic Loadings.

(U)

DESCRIPTIVE NOTE: Final rept.,

MAY 77 41P Jhansale, H. R. ;

REPT. NO. CERL-TR-M-214

PROJ: 4A762719AT41

TASK: T4

UNCLASSIFIED REPORT

DESCRIPTORS: \*Structural steel, \*Aluminum alloys, Cold working, Hot working, Cyclic tests, Hardening, Softening, Relaxation, Creep, Nonlinear systems, Fatigue (Mechanics), Mathematical models, Loads (Forces)

(U)

IDENTIFIERS: Inelastic metals,  
Memory (Materials), ASTM, WU010,  
PE62719A

(U)

IAC ACCESSION NUMBER: MCIC-100473

IAC DOCUMENT TYPE: MCIC -HARD COPY--

This report develops a general procedure for modeling the inelastic stress-strain response of structural metals subjected to complex irregular cyclic loadings. The model is ideally suited for programming on a digital computer and uses 'cyclic' material parameters (or properties) determined from simple constant strain amplitude cyclic tests. Four model formulations which include three degrees of simplification in the model are proposed and their appropriate applications are indicated. In its most complete formulation, the model is capable of simulating all the important observed phenomena of a wide range of structural metals, including hotworked and coldworked steels and aircraft aluminum. These phenomena include 'memory' of prior history, cyclic hardening, cyclic softening, cyclic relaxation, cyclic creep, and the observed deviation from the Masing behavior. A major contribution of this report is in the development of a unified characterization of these phenomena. The model and the 'cyclic' material parameters developed provide the necessary base for formulating a general

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## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL : 099062

AD-A040 119 14/1 9/2 5/3

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLComputer-Aided Final Design Cost  
Estimating System Overview.

(U)

DESCRIPTIVE NOTE: Interim rept.,

MAY 77 12P O'Connor, Michael J. ;

Botero, S. A. ;

REPT. NO. CERL-IR-P-81

PROJ: 4A762790AT41

TASK: 01

UNCLASSIFIED REPORT

DESCRIPTORS: \*Cost estimates, \*Computer aided  
design, Construction, Buildings, Maintenance  
IDENTIFIERS: \*Cost engineering, AST41,  
PE62790A, WU005

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This report presents an overview of a proposed  
computer-aided final design cost estimating system  
that will help cost estimators prepare final design  
construction cost estimates. Use of the system and  
the cost estimating concepts on which the system is  
based are discussed. Data development and  
maintenance strategies are proposed.

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## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A040 061 13/3 7/4 18/8

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLA Comparative Evaluation of the Neutron/  
Gamma and Kelly-Vail Techniques for  
Determining Water and Cement Content of  
Fresh Concrete.

(U)

DESCRIPTIVE NOTE: Final rept.,

MAY 77 167P Howdysheil, P. A. ;

REPT. NO. CERL-SR-W-216

PROJ: 4A762719AT41

TASK: T4

UNCLASSIFIED REPORT

DESCRIPTORS: \*Concrete, \*Radioactivation analysis,  
\*Chemical analysis, Accuracy, Neutron activation,  
Neutron absorption, Neutron scattering, Neutron  
spectrometers, Gamma ray spectroscopy, Neutron  
capture gamma rays, Flames, Photometry, Chlorides,  
Ions, Cements, Components, Nondestructive  
testing, Quick reaction

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IDENTIFIERS: Titration, WU008, AST41,

PE62719A

IAC ACCESSION NUMBER: NT-014722

IAC DOCUMENT TYPE: NTIAC -MICROFICHE--

The objective of this investigation was to  
comparatively evaluate a nuclear (neutron/gamma)  
technique and a chemical (Kelly-Vail) technique  
determining water and cement content of fresh  
concrete. The nuclear technique relies on the  
characteristic energy emissions of various elements  
during neutron interactions for determining water and  
cement content. The chemical technique relies on  
chloride ion titration to determine water content and  
flame photometry to determine cement content. Tests  
results indicate that the neutron/gamma method can  
estimate water contents to + or - 6 percent, and  
cement contents to + or - 9 to 22 percent,  
depending on the type of aggregate used. This  
compared to cement and water content accuracies of  
7.1 and 5.2 percent, respectively, for the chemical  
technique.

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IAC SUBJECT TERMS: N--(U)EVALUATION, COMPARATORS,  
TECHNIQUE, CHEMICALS, CONCRETE, ACCURACY, NEUTRON  
ACTIVATION ANALYSIS, NEUTRON ABSORPTION, NEUTRONS,  
AD-A040 061

AD-A040 119

UNCLASSIFIED

PAGE

126

UNCLASSIFIED

099062

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 039062

AD-A040 005 20/1 17/1

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLAnalysis of Environmental Noise  
Monitors. (U)

DESCRIPTIVE NOTE: Final rept.,

APR 77 23P Schomer, P. D.; Averbuch, A.

J. ;

REPT. NO. CERL-TR-N-21

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Acoustic measurement, \*Monitors,  
\*Noise pollution, \*Acoustic detection,  
Performance(Engineering), Data reduction,  
Range(Distance), Shock resistance, Errors,  
Wind, Environmental tests, Response  
IDENTIFIERS: Environmental noise monitors, Noise  
levels, Impulse analysis

This report establishes criteria and performance guidelines desirable in environmental noise monitors that are achievable through state-of-the-art technology. To assess this technology, the performances of 10 available units were evaluated based on the following points: (1) Data reduction methods and analytic results; (2) Dynamic range; (3) Impulse response; (4) Environmental considerations (temperature extremes and wind); (5) Shock resistance; (6) Ease of operation; and (7) Likelihood of errors in operation. Favorable and unfavorable features discovered during the investigation of these units are discussed, as well as desirable features found to be absent in all of the units. Based on the study and the conclusions, the operating characteristics of an ideal unit are recommended. (U)

AD-A040 005

UNCLASSIFIED

PAGE

127

AD-A039 364

UNCLASSIFIED

099062

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A039 364 6/8 6/6

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLAir Curtain Machines for Food Service  
Facilities. (U)

DESCRIPTIVE NOTE: Final rept.,

APR 77 29P Eng, Dominic ;

REPT. NO. CERL-TR-E-104

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Food service, \*Insect control,  
Effectiveness, Diptera, Literature surveys  
IDENTIFIERS: \*Air curtains

The objectives of this study were to ascertain the effectiveness of air curtain machines in excluding small insects from food service and commissary facilities, and to provide design guidance and installation information for such machines. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A039 363 13/2 5/1

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILL

A Systems Approach to Construction of  
Recreational Area Facilities. Volume I.  
Program Methodology.

(U)

DESCRIPTIVE NOTE: Final rept.,

MAR 77 80P Worrel, Edward J. ;  
REPT. NO. CERL-TR-D-76-Vol-1

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: See also Volume 2, AD-A038  
594.

DESCRIPTORS: \*Toilet facilities, \*Army procurement,  
Contract administration, Construction,  
Specifications, Systems management, Costs,  
Project personnel, Army Corps of Engineers,  
Systems approach, Recreation, Shower facilities,  
Reservoirs, Sanitary engineering, Cost  
effectiveness

IDENTIFIERS: Recreational facilities (U)  
(U)

This report describes a program conducted by this  
laboratory in conjunction with the U.S. Army  
Engineer Division, Ohio River, for  
procurement of 78 industrialized sanitary facilities.  
Performance specifications and two-step formal  
advertising procedures were used to obtain the  
desired facilities. The low bid price was 53% of  
the conventional construction government estimate.  
The cost savings did not result from a particular  
design for sanitary facilities, but from the  
definition of the project and the manner in which the  
facilities were procured. Given a sufficient number  
of facilities within a particular geographic region,  
builders can reduce material costs through bulk  
purchasing, and labor costs through the learning-  
curve phenomenon. The labor cost savings, which is  
the significant one, can only be achieved if the  
builder is performing in its area of specialization;  
a sizable part of the builder's savings will be  
passed on to the purchaser only if other builders who  
are also permitted to achieve such savings are in  
competition. The key to the approach is performance  
specifications, which describe the facility  
requirements so that builders can propose

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AD-A039 363

UNCLASSIFIED

PAGE

128

AD-A039 132

UNCLASSIFIED

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A039 132 13/2 9/2 5/2

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILL

Computer-Aided Environmental Impact  
Analysis for Air Force Research,  
Development, Test and Evaluation  
Activities: User Manual.

(U)

DESCRIPTIVE NOTE: Final rept.,

APR 77 139P Thomas, Susan E. ;  
REPT. NO. CERL-TR-N-20

UNCLASSIFIED REPORT

DESCRIPTORS: \*Environmental impact statements,  
\*Computer applications, \*Air force facilities,  
Civil engineering, Reports, Preparation,  
Technical writing, Instruction manuals, Input  
output processing, Assessment, Factor analysis,  
Test and evaluation, Computer aided design,  
Methodology

IDENTIFIERS: User manuals (U)  
(U)

The federal government has requested that its  
agencies incorporate environmental considerations  
into the planning of new projects and activities.  
Environmental impact assessments and statements  
(EIA/EIS) provide a basis for review and analysis  
of a proposed project's environmental consequences.  
The Environmental Impact Computer System  
(EICS), developed by the U.S. Army  
Construction Engineering Research Lab., helps  
planners efficiently identify primary and secondary  
impacts of their proposed projects or activities and  
suggests way to mitigate these impacts. This manual  
is designed to help Air Force personnel prepare  
EIAs and EISs using the EICS. Detailed  
instructions for accessing the Research,  
Development, Test, and Evaluation Functional  
Area of EICS are included as is an input form  
necessary for obtaining EICS output. The manual  
discusses in detail procedures necessary for using  
EICS output for environmental impact assessment and  
outlines the steps for preparing a proper and  
complete EIA/EIS. (Author)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A039 120 11/2 7/4

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLRevised Operations Guide for a Chemical  
Technique to Determine Water and Cement  
Concrete of Fresh Concrete.

(U)

DESCRIPTIVE NOTE: Final rept.,

APR 77 38P Howdysheill, P. A. ;

REPT. NO. CERL-TR-M-212

PROJ: 4A763734DT08

TASK: 04

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Concrete, \*Chemical analysis,  
\*Chemical composition, Water, Cements, Test  
methods, Test equipment, Chlorides, Calcium,  
Instruction manuals

IDENTIFIERS: PE63734A, WU002, AST08

This operations guide provides information needed to set up and operate the U.S. Army Construction Engineering Research Laboratory/Kelly Vail (CERL/K-V) system for determining water and cement content of fresh concrete. The guide describes the system's capabilities (including its capability to estimate potential concrete strength), limitations, and accuracy, and details the required equipment, reagents, and procedures. A guide for analyzing test results and a description of a mobile miniaturized field unit are presented.

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A039 029 13/8 11/3

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLSpray Painting: Equipment and Techniques  
for Application of Vinyl Paints.

(U)

DESCRIPTIVE NOTE: Final rept.,

MAR 77 31P Beitleman, A. ;

REPT. NO. CERL-TM-M-210

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Plastic paints, \*Sprayers, \*Sprays,  
Vinyl plastics, Atomization, Air, Heating,  
Vinyl plastics, Polyurethane resins, Epoxy resins,  
Zinc, Weather, Temperature

(U)

This paper is intended to assist those involved with spray painting to better understand both the equipment and techniques used in the application of vinyl paints. The basic components of both conventional atomization and airless atomization systems are discussed (including heated systems). Guidance is given on the application techniques found to be most effective when applying Corps of Engineers' vinyl paints. The causes of some unsatisfactory painting results are given along with methods for correcting the problem. (Author)

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AD-A039 120

UNCLASSIFIED

PAGE 129

AD-A039 029

UNCLASSIFIED

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## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099032

AD-A038 832 13/8 11/3 13/10

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLCoatings and Cathodic Protection of Piling  
in Seawater: Results of 5-Year  
Exposure.

(U)

DESCRIPTIVE NOTE: Final rept..

MAR 77 82P Wittmer, D. E.; Kumar, A. ;  
REPT. NO. CERL-TR-M-207

UNCLASSIFIED REPORT

DESCRIPTORS: \*Cathodic protection, \*Anodic coatings,  
\*Pile structures, \*Sea water, Steel, Inspection,  
Test methods, Extraction, Corrosion, Zinc,  
Aluminum, Exposure(General), Polarization,  
Nondestructive testing, Site selection, Pitting,  
Cost effectiveness

(U)

IAC ACCESSION NUMBER: NT-014638

IAC DOCUMENT TYPE: NTIAC -MICROFICHE--

This report presents the results of the inspection  
of test piling extracted after 5 years of exposure  
to seawater at LaCosta Island, FL. The  
effectiveness of various coating systems and  
sacrificial anodes in preventing corrosion of H-  
and steel pipe piling in seawater is assessed. Six  
of the coating systems were found to perform  
excellently, as was a coating/cathodic protection  
combination. Sacrificial anodes of zinc and  
aluminum were also found to effectively reduce  
corrosion in the immersed zone. The study also  
confirmed that use of the cathodic protection index  
and polarization behavior is an effective  
nondestructive testing technique for monitoring  
corrosion of steel immersed in seawater.

(U)

IAC SUBJECT TERMS: N--(U)COATINGS, PILING, UNDERWATER,  
PROTECTIVE COATINGS, ANODIZING, CATHODIC PROTECTION, TEST  
METHODS, COST EFFECTIVENESS, ZINC, ALUMINUM, STEEL,  
CORROSION, POLARIZATION;

AD-A038 832

UNCLASSIFIED

PAGE

130

AD-A038 768

UNCLASSIFIED

099062

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A038 768 15/5 14/2

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLFragility Data Analysis and Testing  
Guidelines for Essential Equipment Used in  
Critical Facilities.

(U)

DESCRIPTIVE NOTE: Final rept..

MAR 77 46P Sonnenburg, Paul M. ;  
REPT. NO. CERL-SR-M-209  
PROJ: 4A762731AT41  
TASK: 04

UNCLASSIFIED REPORT

DESCRIPTORS: \*Fragility, \*Critical assemblies,  
\*Army equipment, \*Military facilities, Tactical  
analyses, Hardened structures, Test equipment,  
Reports, Data acquisition, Test methods,  
Specifications, Military requirements, Guided  
missile sites, Earthquake resistant structures,  
Earthquake engineering, Hardening, Failure,  
Survival(General)  
IDENTIFIERS: Safeguard antiballistic missile system,  
WU002, ASI41, PE02731A

(U)

(U)

Fragility data reports from tests of many items of  
tactical support equipment used at missile sites  
were reviewed to analyze failure characteristics.  
This type of equipment is closely related to that  
used in essential systems of critical facilities.  
Results were organized to formulate specifications  
for fragility test report requirements and guidelines  
for planning fragility tests for the essential  
equipment of utilities and lifelines used in critical  
facilities. A method of statistically analyzing  
fragility data was developed to facilitate  
calculating the probability of failure when the cause  
of failure was not consistent or obvious. The  
proposed specifications and guidelines were to be  
incorporated into a more complete set of testing  
specifications to be finished at a later date.

(U)

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A038 594 13/2

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN ILL

A Systems Approach to Construction of Recreational Area Facilities Volume II. Request for Technical Proposal and Evaluation Documentation.

(U)

DESCRIPTIVE NOTE: Final rept.,  
MAR 77 117P  
Rept. NO. CERL-TR-D-76-Vol-2

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Toilet facilities. \*Sanitary engineering. \*Shower facilities. Construction. Specifications. Proposals. Systems approach. Documentation

(U)

IDENTIFIERS: Recreational facilities

This is the second volume of a two-volume report describing a program conducted by the U.S. Army Construction Engineering Research Laboratory in conjunction with the U.S. Army Engineer Division, Ohio River, for the procurement of 78 industrialized sanitary facilities. This volume contains the Request for Technical Proposal Step-One documentation (which includes the Performance Specification for Sanitary Facilities), and the evaluation documentation used by the Evaluation Board to evaluate the submitted proposals, and Step-Two documentation (including wage rates per county for potential laborers involved in the program).

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AD-A038 594

UNCLASSIFIED

PAGE

131

AD-A038 232

UNCLASSIFIED

099062

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A038 232 5/4 20/1

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN ILL

A Practical Application of Community Noise Analyses -- Case Study of Allegheny County, Pennsylvania.

(U)

DESCRIPTIVE NOTE: Final rept.,  
FEB 77 82P  
P. : DiMatteo, R. E. ;  
Rept. NO. CERL-TR-N-22  
MONITOR: EPA 350/9 77-400

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Noise reduction. \*Community relations. Communities. Legislation. Control. Parameters. Sources. Noise pollution. Data reduction. Cost analysis. Noise and vibration. Pennsylvania

(U)

IDENTIFIERS: A legnny County (Pennsylvania)

(U)

This report is designed to document the technical results of a 2-1/2 day Noise Control program in Allegheny County, Pennsylvania, while the program is in effect. Community noise education, compliance with the community noise survey, public hearings at community and public hearings-only meetings, and legislation are detailed. First, data are presented for describing a community noise problem. Specific parameters of community noise are evaluated and used to develop a community noise study. Survey data are presented and analyzed according to such parameters as time of day, noise level, and use, and municipality. Finally, the results are incorporated into community noise legislation. (Author)

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UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A037 048

13/2

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILL

Fugitive Dust Emissions from Construction  
Haul Roads.

(U)

DESCRIPTIVE NOTE: Special rept.,

FEB 77 53P Struss, S. R.; Mikucki, W.

J. ;

REPT. NO. CERL-SR-N-17

PROJ: 4A162121A896

TASK: T2

UNCLASSIFIED REPORT

DESCRIPTORS: \*Air pollution, \*Dust, Soils,  
Roads, Trucks, Construction, Moisture content,  
Plastic properties, Emission, Tires, Water  
treatment, Control, Laboratory tests,  
Environmental impact statements

(U)

IDENTIFIERS: Air pollution abatement, WU006,  
AS896, PE62121A

(U)

In Fiscal Year 1972, a study was initiated  
(1) to examine the nature of environmental  
degradation resulting from construction, and (2)  
to formulate both a Contract Specification  
Writer's Guide containing environmentally  
protective specifications and a Resident  
Engineers' Guide with similar information to  
allow proper enforcement of the environmental  
specifications. These two guides were published as  
CERL Technical Reports E-72 (July 1975) and  
E-57 (May 1975), respectively. During the  
development of these documents, two areas were noted  
to have a paucity of available information:  
(1) solid waste generation from construction and  
demolition activities, and (2) fugitive dust  
emissions from unimproved construction haul roads.  
This report provides details on a study which  
developed a model for predicting dust emissions from  
haul roads. The study examines the use of water as  
a palliative to control dust emissions. The study  
was conducted in two phases, and comparative data  
were obtained from a third, independently conducted  
phase. This study indicates that soil water  
potential, along with vehicle speed, vehicle weight,  
and soil type, are significant in the determination (U)

AD-A037 048

UNCLASSIFIED

PAGE

133

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A037 047

11/6

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILL

Effect of Lack of Penetration on Fatigue  
Resistance of High-Strength Structural  
Steel Welds.

(U)

DESCRIPTIVE NOTE: Final rept.,

FEB 77 30P Tobe, Y.; Cox, E. P. ;

Lawrence, F. V., Jr. ;

REPT. NO. CERL-TR-M-203

PROJ: 4DM780120K1

TASK: 02

UNCLASSIFIED REPORT

DESCRIPTORS: \*Welds, \*Steel, High strength,  
Fatigue (Mechanics), Fatigue  
tests (Mechanics), Crack propagation, Metal  
plates, Defects (Materials), Butt welding,  
Penetration, Structural properties, Porosity

(U)

IAC ACCESSION NUMBER: MCIC-107330  
IAC DOCUMENT TYPE: MCIC -HARD COPY--  
Zero-to-tension fatigue tests were carried out on  
double-V butt welds of ASTM A514 steel plate,  
20 mm in thickness, which contained full-length lack  
of penetration (LOP) defects. The fatigue crack  
initiation and propagation portions of the specimens'  
fatigue lives were experimentally separated.  
Compression-to-tension fatigue tests were carried  
out on prime base plate, as-welded sound joints, and  
reinforcement-removed welds to experimentally  
determine the fatigue strength reduction factor  
(Kf) of the LOP defects. LOP defects as small  
as 0.5 mm wide had a profound effect on fatigue life.  
The fatigue crack initiation life was found to be  
short-only 10 percent of the total life-and could be  
predicted using fatigue crack initiation concepts.  
The use of Kf(max), the maximum possible  
fatigue strength reduction factor, was found to be  
appropriate. In a separate study, the fatigue  
resistance of ASTM A514 butt-welded joints  
containing clustered porosity was determined.  
(Author)

(U)

IAC SUBJECT TERMS: M--(U)MPDC, Welds, Weld  
Penetration, Fatigue Test, Fatigue Crack  
Propagation, Engineering Steel, A514, Low Cycle  
AD-A037 047

UNCLASSIFIED

099062

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099052

AD-A037 046 13/8 11/6

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILL

The Effects of Base Metal Notch  
Orientation and Acuity and Weld Porosity on  
the Dynamic Tear Toughness of A514F  
Steel.

DESCRIPTIVE NOTE: Final rept.,

FEB 77 32P Cox, E. P. ;

REPT. NO. CERL-TR-M-201

PROJ: 4A078012AOK1

TASK: 02

UNCLASSIFIED REPORT

DESCRIPTORS: \*Welds. \*Porosity. \*Steel. \*Butt  
welding. Defects(Materials). Notch toughness.  
Orientation(Direction). Impact. Toughness.  
Dynamic tests. Tearing  
IDENTIFIERS: Steel A-514F

The effects of weld porosity on the dynamic tear  
properties of A514F steel butt welds were  
assessed in a program which conducted dynamic tear  
tests in six areas of experimentation: (1)  
the base plate steel in the longitudinal and  
transverse orientations; (2) sound weld metal;  
(3) weld metal containing clustered porosity;  
(4) weld metal containing linear porosity;  
(5) stress-relieved weld metal; and (6)  
base metal in the longitudinal and transverse  
directions having fatigue precracked notches. The  
upper shelf dynamic tear toughness of the base plate  
was observed to be much greater for specimens with  
the notch oriented perpendicular to the final  
rolling direction than for the specimens with the  
notch parallel to the final. Specimens which had  
notches precracked in fatigue and oriented parallel  
to the rolling direction had the same toughness-  
temperature behavior as specimens that were machine-  
notched in the same orientation. The toughness  
values of the fatigue precracked specimens whose  
notches were perpendicular to the rolling direction  
were greater than for the same orientation specimens  
with machined notches. The fatigue precracked  
specimens had higher temperature ductile-to-brittle  
transitions than the machine-notched specimens.

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AD-A037 046

UNCLASSIFIED

PAGE

134

AD-A036 675

UNCLASSIFIED

099062

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A036 675 13/2

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILL

Disposal of Cleaning Debris.

(U)

DESCRIPTIVE NOTE: Interim rept.,

FEB 77 93P Kloster, S. E. ; Mikucki, W.

J. ;

REPT. NO. CERL-IR-N-16

UNCLASSIFIED REPORT

DESCRIPTORS: \*Dams. \*Waste disposal. Pollution  
abatement. Construction. Solid wastes. Debris  
Debris

(U)

IAC ACCESSION NUMBER: PL-900776

IAC DOCUMENT TYPE: PLASTIC-MICROFICHE--

Recent environmental legislation has made the  
disposal of cleaning debris a more difficult problem  
at dam sites. Corps of Engineers personnel must  
now consider a number of complex and interacting  
factors when determining disposal methods.  
Investigators reviewed many cleaning contracts and  
pertinent literature, visited several projects, and  
discussed disposal methods with personnel working on  
Corps projects. From this information, the  
investigators developed a list of factors that should  
be considered when selecting cleaning and disposal  
methods for a particular site.

(U)

IAC SUBJECT TERMS:

P--(U)Wood wastes, Machinery,  
Incineration, Open burning, Vegetation wastes,  
Solid wastes, Waste disposal, Forestry wastes,  
Feedstocks, RDF, Disposal equipment, ZZ MTDE, ZZ  
Unlimited.;

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A036 479

13/1

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLMarket Evaluation Study: Solar Domestic  
Water Heaters for DOD Barracks.

(U)

DESCRIPTIVE NOTE: Final rept..

FEB 77 39P Windingland, Larry ;Walton,

George ;Hittle,Douglas ;

REPT. NO. CERL-TR-E-102

UNCLASSIFIED REPORT

DESCRIPTORS: \*Solar heating, \*Solar collectors,  
\*Barracks, \*Hot water, Life cycle costs, Cost  
analysis, Solar energy, Heating, Solar radiation,  
Geographic areas, Computerized simulation, Graph

(U)

This study assesses the potential market for solar domestic hot water systems in DOD bachelor enlisted and bachelor officer quarters (barracks). The number and locations of existing and planned bachelor enlisted and bachelor officer quarters in the United States are analyzed, and the locations where solar domestic water heating is most feasible are determined. Life-cycle costs of providing solar domestic water heating systems are analyzed and the DOD market potential for these systems determined for varying system costs. The results of more than 120 one-year solar hot water heating system simulations are presented along with a dimensionless graph and methodology which can be used to estimate solar hot water heater performance for building loads and sites other than those studied. The potential markets for solar collectors based on varying system costs are presented. Results indicate that at an anticipated future system cost of \$9/sq ft (\$97/sq m) of collector the probable market for solar collectors is 4.4 million sq ft (409 000 sq m). Over a 20-year life, the potential savings resulting from application of this collector area is estimated to be 4.5 million barrels of fuel and \$29 million. (Author)

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AD-A036 479

UNCLASSIFIED

PAGE

135

AD-A036 473

UNCLASSIFIED

099062

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A036 473

20/11

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLA Plasticity Formulation for Cyclic  
Inelastic Structural Analysis.

(U)

DESCRIPTIVE NOTE: Interim rept..

FEB 77 28P Sharma, S. K. ;Jhansale, M.

R. ;

REPT. NO. CERL-IR-W-202

PROJ: 4A161102AT23

TASK: 02

UNCLASSIFIED REPORT

DESCRIPTORS: \*Structural analysis, \*Elastic  
properties, \*Plastic properties, Deformation,  
Loads (Forces), Cyclic tests, Mathematical  
models, Algorithms, Formulations, Stresses,  
Strain (Mechanics)  
IDENTIFIERS: AST23, WU004

(U)

(U)

A critical review of current inelastic structural analysis procedures indicates that the material constitutive models presently in use do not adequately reflect the materials' cyclic inelastic properties. This will result in erroneous evaluation of deformation response and energy dissipation in structures subjected to dynamic loadings. This report presents a plasticity formulation which is capable of simulating all the important features of material properties observed under cyclic uniaxial loading. Appropriate cyclic material properties required for characterizing the combined isotropic-kinematic hardening features of this formulation are defined. These properties are determined from simple cyclic uniaxial tests. The formulation uses Mroz's concept of multiple and nesting hypersurfaces in stress space to simulate the memory of prior history; it eliminates the need for classifying a general loading path into a plastic loading or a plastic load reversal for cyclic analysis. The superiority of this formulation over currently available methods is demonstrated.

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(Author)

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A035 779 13/13

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLDesign Criteria for Theater of Operations  
Steel Highway Bridges. Volume II.  
Appendices A-1.

(U)

DESCRIPTIVE NOTE: Final rept.,

JAN 77 199P Knab, L. I.; Munse, W. H.  
; Ang, A. H-S.; Rolfe, S. T.; Sanders, W.  
W., Jr;

REPT. NO. CERL-TR-W-195-Vol-2

PROJ: 4A763734D734

TASK: 04

## UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: See also Volume 1, AD-A035  
763.DESCRIPTORS: \*Military bridges, \*Bridges, Military  
engineering, Theater level operations, Criteria,  
Construction, Bridges, Loads(Forces), Stress  
analysis, Tension, Fatigue(Mechanics), Static  
loads, Structural properties, Military requirements,  
Reliability, Steel, Structural steel,  
Highways

(U)

IDENTIFIERS: \*Steel highway bridges, Design,

(U)

WU002, AS734, PE637344

This volume details the development and justification of the design criteria, procedures, and material specifications for Theater of Operations (T/O) temporary steel highway bridges recommended in Volume I. Appendices A through D describe the development of the static load case criteria. The brittle fracture criteria are treated in Appendix E and the fatigue criteria are developed in Appendix F. Appendix G provides the background for the fastener and connection resistance for the static load case. Appendices H and I contain the development of the lateral load distribution and shear formulas. It should be emphasized that this volume does not provide recommendations for design criteria, procedures, and material specifications; it provides only their development and justification. Volume I provides the recommendations. (Author)

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AD-A035 779

UNCLASSIFIED

PAGE

136

AD-A035 763

UNCLASSIFIED

099062

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A035 763 13/13

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLDesign Criteria for Theater of Operations  
Steel Highway Bridges, Volume I.

(U)

DESCRIPTIVE NOTE: Final rept.,

JAN 77 35P Knab, L. I.; Munse, W. H.  
; Ang, A. H-S.; Rolfe, S. T.; Sanders, W.  
W., Jr;

REPT. NO. CERL-TR-W-195-Vol-1

PROJ: 4A763734DT34

TASK: 04

## UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: See also Volume 2, AD-A035  
779.DESCRIPTORS: \*Military bridges, \*Bridges, Military  
engineering, Theater level operations, Criteria,  
Construction, Military requirements, Models,  
Reliability, Structural engineering,  
Loads(Forces), Tension, Cost effectiveness,  
Safety, weight, Static loads, Structural steel,  
Steel, Highways

(U)

IDENTIFIERS: Design, WU002, AST34,

(U)

PE637344

This report presents structural design criteria recommendations for theater of operations (T/O) temporary steel highway bridges. The report consists of two volumes: Volume I provides the design criteria, procedures, and material specifications for both Army facilities Components System (AFCS) bridges and bridges designed by combat engineers; Volume II contains the development and justification for the criteria in Volume I. Evaluation of the existing military design criteria indicated that their use can result in bridges which are potentially unsafe or perform poorly. State-of-the-art methodologies were used to develop static, fatigue, and brittle fracture criteria which should result in improved safety and performance for T/O bridges. The recommended criteria are based on modifications to existing criteria for military and permanent nonmilitary bridges. The AFCS bridge criteria are intended for use by engineers in bridge design offices. Use

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## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A035 688 13/13 11/7

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLDesign Criteria for Theater of Operations  
Glued-Laminated Timber Highway Bridges.  
Volume II. Appendices A-E. (U)

DESCRIPTIVE NOTE: Final rept.,

JAN 77 72P Knab, L. I.; Moody, R. C.  
; Sanders, W. W., Jr.; Elleby, H. A.;  
REPT. NO. CERL-TR-M-198-Vol-2  
PROJ: 4A763734DT34  
TASK: 04

## UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: See also Volume 1, AD-A035  
687.DESCRIPTORS: \*Military bridges, \*Laminates,  
\*Bridges, Wood, Load distribution, Military  
engineering, Stress analysis, Construction,  
Materials, Shear strength, Tension, Bending  
stress, Structural properties  
IDENTIFIERS: Design, PEC3734A, AST34,  
WU002 (U)

IAC ACCESSION NUMBER: PL-025159

IAC DOCUMENT TYPE: PLASTIC -MICROFICHE--  
This volume contains the development of and  
justification for the design criteria, procedures,  
and material specifications for glued-laminated  
timber Theater of Operations highway bridges  
recommended in Volume I, Appendices A through  
D describe the method and assumptions used in  
developing the design criteria. Appendix E  
describes the development of the moment distribution  
and shear formulas. These appendices do not provide  
recommendations for design criteria, procedures, and  
material specifications; the recommendations are  
given in Volume I. (Author) (U)IAC SUBJECT TERMS: P--(U)Design-Stringer structures,  
Bridges-Military applications, Specifications-  
Bridges, Stress-Timber/plastic, Buckling-Wood/  
plastic, Adhesive bonding-Timber, Laminates-  
Bridges, Bending-wood/plastic, ZZ Unlimited;

AD-A035 688

UNCLASSIFIED

PAGE

137

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A035 687 13/13 11/7

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLDesign Criteria for Theater of Operations  
Glued-Laminated Timber Highway Bridges.  
Volume I. (U)

DESCRIPTIVE NOTE: Final rept.,

JAN 77 20P Knab, L. I.; Moody, R. C.  
; Sanders, W. W., Jr.; Elleby, H. A.;  
REPT. NO. CERL-TR-M-198-Vol-1  
PROJ: 4A763734DT34  
TASK: 04

## UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: See also Volume 2, AD-A035  
688.DESCRIPTORS: \*Military bridges, \*Laminates,  
\*Bridges, Wood, Specifications, Theater level  
operations, Criteria, State of the art,  
Construction, Materials, Loads(Forces), Cost  
effectiveness, Civil engineering  
IDENTIFIERS: Design, \*Military fixed bridges,  
PE63734A, AST34, WU002 (U)

IAC ACCESSION NUMBER: PL-025158

IAC DOCUMENT TYPE: PLASTIC -MICROFICHE--  
This report presents structural design criteria  
recommendations for theater of operations (T/O)  
temporary glued-laminated timber highway bridges.  
The report consists of two volumes: Volume I  
provides the design criteria, procedures, and  
material specifications, and Volume II contains  
the development of and justification for the criteria  
in Volume I. State-of-the-art methodologies  
were used to develop the criteria, which are based on  
modifications to existing military and permanent  
criteria. Use of the criteria by engineers in  
bridge design offices should result in T/O  
bridges that have adequate safety and perform  
satisfactorily. Material weight of glued-laminated  
timber stringers in T/O bridges designed using  
the recommended criteria, typically will be about 15  
percent less than when designed using permanent  
bridge criteria. (Author) (U)IAC SUBJECT TERMS: P--(U)Design-Stringer structures,  
Bridges-Military applications, Specifications-  
AD-A035 687

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## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A035 629

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20/11

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLFracture Characteristics of Two High-  
Strength, Low-Alloy and Two Stainless  
Steels.

(U)

DESCRIPTIVE NOTE: Interim rept.,  
JAN 77 56P Scott, J. K. ; Cox, E. P. ;  
REPT. NO. CERL-IR-W-200  
PROJ: 4A761102AT23  
TASK: A2

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Structural steel. \*Stainless steel.  
\*Fracture(Mechanics). High strength alloys,  
Low alloy steels, Tensile stress, Fatigue  
tests(Mechanics), Impact tests.  
Loads(Forces), Hydrogen embrittlement,  
Tempering, Surface properties, Experimental data,  
Chemical composition, Mechanical properties,  
Electron microscopy, Simulation  
IDENTIFIERS: Steel A-588, Steel A-242, Steel  
AISI 416, Steel 17-4PH, WU002, PE61102A,  
AST23

(U)

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IAC ACCESSION NUMBER: MCIC-099048

IAC DOCUMENT TYPE: MCIC -HARD COPY--

The fracture characteristics of two high-strength,  
low-alloy structural steels (ASTM A-588 and A-  
242) and two stainless steels (AISI 416 and 17-  
4PH) were analyzed under tensile, fatigue, and  
impact loading conditions. The effects of hydrogen-  
and temper-embrittlement on the materials' behavior  
when fractured under tensile and fatigue conditions  
were investigated. The structural steels were found  
to be unsuitable to temper-embrittlement. ASTM  
A-588 was found to be susceptible to hydrogen-  
embrittlement; A-242 was not found susceptible, but  
this could be attributed to the abnormally low  
toughness condition of the as-received material.  
The stainless steels were found to be unsuitable  
to the hydrogen-charging procedure performed in this  
study. Mechanical tests showed large variations in  
values for the tempered stainless steel specimens,  
although the fracture surfaces appeared very similar.  
These findings reaffirmed the generally accepted

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AD-A035 629

UNCLASSIFIED

PAGE

138

AD-A035 608

UNCLASSIFIED

099062

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A035 608

10/1

20/13

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLPredicting the Performance of Solar Energy  
Systems.

(U)

DESCRIPTIVE NOTE: Final rept.,  
JAN 77 45P Hittle, D. C. ; Walton, G.  
N. ; Holshouser, D. F. ; Levenenz, D. J. ;  
REPT. NO. CERL-IR-E-98  
PROJ: 4A763734DT08  
TASK: 06

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Solar energy. \*Heating plants.  
\*Solar collectors, Solar radiation, Hot water,  
Life cycle costs, Cooling and ventilating equipment,  
Computerized simulation, Charts, Cost analysis  
IDENTIFIERS: AST08, WU001, PE63734A

(U)

(U)

IAC ACCESSION NUMBER: PL-900779

IAC DOCUMENT TYPE: PLASTIC -MICROFICHE--

This report presents a method for making an energy  
and life-cycle cost analysis of solar energy systems.  
A graphical method is presented for predicting the  
performance of solar domestic hot water systems,  
solar heating systems, and solar heating and cooling  
systems. Methods for selecting the optimum  
collector area based on life-cycle cost and for  
systematically making detailed design calculations  
using the Building Loads Analysis and System  
Thermodynamics (BLAST) computer simulation  
program are also presented. Practical  
considerations for solar system designs are  
discussed. The methods presented provide the  
required accuracy for both initial evaluations and  
final design calculations. Examples are provided  
throughout the text to aid in using the methods  
described. (Author)

(U)

IAC SUBJECT TERMS: P--(U)Cost analysis, Solar  
collectors, Design optimization, Computer programs,  
Modeling, Energy conversion, Heat exchangers,  
Cooling systems, ZZ MTDE, ZZ Unlimited.;

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A035 262 15/7 15/5

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLMilitary Construction Engineering and Design  
Cost Forecasts. (U)

DESCRIPTIVE NOTE: Final rept..

JAN 77 30P O'Connor, Michael J. ;  
Brown, Gerald J. ; DeCady, John R. ;

REPT. NO. CERL-TR-P-77

PROJ: DA-4-A-762719-AT-05

TASK: 4-A-762719-AT-0503

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Military engineering. \*Construction.  
\*Cost models. Military facilities. Military  
planning. Cost estimates. Predictions. Statistical  
analysis (U)

This report presents a statistical model for forecasting engineering and design (E and D) costs to aid the Directorate of Military Construction in establishing yearly targets for Division/District E and D rates. Data for nine military Construction Divisions/Districts from fiscal year (FY) 1966 through fiscal year 1975 were analyzed. A statistically significant model for eight Districts was developed and verified by a retrospective test. E and D costs/rates predicted as a function of the estimated cost of construction for the eight Districts are presented for FY 76 and FY 77. (U)

AD-A035 262

UNCLASSIFIED

PAGE

139

AD-A035 258

UNCLASSIFIED

099062

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A035 258 13/3 11/6

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLAn Investigation of the Susceptibility of  
Post-Tensioning Cables to Stress-Corrosion  
Cracking. (U)

DESCRIPTIVE NOTE: Final rept..

JAN 77 12P Hahn, C. ; Gambill, J. ;  
Scott, J. K. ;

REPT. NO. CERL-TR-M-199

PROJ: DA-4-A-762719-AT-41

TASK: 4-A-762719-AT-4107

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Mechanical cables. \*Stress corrosion.  
Reinforcement (Structures). Tension. Steel.  
Wire rope. Construction materials. Prestressing.  
Environmental tests. Corrosive liquids (U)  
IDENTIFIERS: Post-tensioning cables (U)

Post-tensioning cables having ultimate tensile strength (UTS) of 270 ksi (1862 MPa) and satisfying ASTM Standard A-416 were stressed to 80 to 95 percent UTS and exposed to 3.5 percent sodium chloride and saturated calcium hydroxide solutions, where pH values ranged from 8 to 12.5. After 900 hours, since no failures were experienced, cables were forced to rupture. No appreciable reduction in strength resulted, except in cables that were artificially notched (strength losses were not due to corrosion). However, rapid failures at 95 percent UTS occurred when cables were immersed in a dilute hydrochloric acid solution where pH values ranged from 1 to 2. Time-to-failure at pH 2 averaged about 100 hours, whereas at pH 1 time-to-failure was about 1 hour. (U)

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A035 208 5/1 13/13

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLEngineering and Design Performance  
Analysis.

(U)

DESCRIPTIVE NOTE: Interim rept.,

DEC 76 316P Lapp, Roger L.; Kirby,

Jeffrey G.;

REPT. NO. CERL-IR-C-75

UNCLASSIFIED REPORT

DESCRIPTORS: \*Military planning, \*Construction,  
 \*Army Corps of Engineers, Policies, Management  
 planning and control, Environmental impact statements,  
 Environmental management, Military engineering,  
 facilities, Housing(Dwellings), Systems  
 engineering

IDENTIFIERS: \*Design

(U)

(U)

The Corps of Engineers design process has been  
 represented by a general activity network of 127  
 quantifiable activities: 13 for environmental  
 impact statements, 30 for architect-engineer (A/  
 E) procurement and District Engineer predesign,  
 53 for preconstruction design, 13 for advertisement  
 and award, and 18 for design modification activities.  
 Five bodies of project time and cost were  
 identified. Detailed project data from the Fort  
 Worth District have been completely analyzed:  
 two sets of data were partially analyzed (ER 415-  
 345-43 project data and MIDAS PROJECT DATA);  
 advertisement and award data were received but not  
 analyzed; and a satisfactory source for design  
 modification (during construction) data is being  
 sought. (Author)

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AD-A035 208

UNCLASSIFIED

PAGE

140

AD-A034 662

UNCLASSIFIED

099062

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A034 662 13/5 11/6

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLThe Effects of Clustered Porosity on the  
Shear Strength of A 514F Transverse  
Fillet Welds.

(U)

DESCRIPTIVE NOTE: Final rept.,

DEC 76 24P Lamba, H. S.; Cox, E. P.;

REPT. NO. CERL-TR-M-196

UNCLASSIFIED REPORT

DESCRIPTORS: \*Steel, \*Weldments, \*Porosity,  
 \*Shear strength, Defects(Materials),  
 Clustering, Porous materials

(U)

IAC ACCESSION NUMBER: MCIC-099175

IAC DOCUMENT TYPE: MCIC -HARD COPY--

This report presents the results of a study of the  
 effects of clustered porosity on the transverse shear  
 strength of A 514F steel weldments. The amount  
 of porosity induced into the specimens ranged from  
 zero to over 20 percent of the fracture surfaces.  
 Results indicate that clustered porosity, up to  
 about 10 percent, has little effect on the shear  
 strength or ductility of transverse shear welds. A  
 slight decline in shear strength was observed for  
 larger amounts of porosity. Results also indicated  
 that secondary defects in the fillet welds which were  
 undetected by x-ray radiography reduced strength  
 below that found in the specimens containing porosity  
 only. (Author)

(U)

IAC SUBJECT TERMS: M--(U)POROSITY, SHEAR ULTIMATE  
 STRENGTH, FILLET WELDS, WELD DEFECTS, ELASTIC PROPERTIES,  
 STRESS INTENSITY, MACHINING, SAWING, CUTTING, SHEAR STRESS,  
 FRACTURE SURFACE, HAZ, GAS METAL ARC WELDING, ULTIMATE  
 TENSILE STRENGTH, RADIOGRAPHY, TENSILE YIELD STRENGTH,  
 ELONGATION, REDUCTION IN AREA, NONDESTRUCTIVE TESTING,  
 ENGINEERING STEEL, T-1, PLATE, 1MN STEEL, WELDS, A514.;

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A034 416 21/4 13/2

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLTechnical Evaluation Study: Solid Waste  
as a fuel at Ft. Bragg, N. C.

(U)

DESCRIPTIVE NOTE: Final rept.,

DEC 76 56P Hathaway, S. A.; Woodyard,

J. P.;

REPT. NO. CERL-TR-E-95

UNCLASSIFIED REPORT

DESCRIPTORS: \*Fuels. \*Solid wastes. \*Waste treatment. Energy conservation. Recovery. Cost analysis. Cost effectiveness. Electric power. Steam power plants. Energy. Combustion

IDENTIFIERS: \*Refuse derived fuels. Scenarios

(U)

(U)

IAC ACCESSION NUMBER: PL-900509

IAC DOCUMENT TYPE: PLASTIC-MICROFICHE--

This study investigated the technical and economic feasibility of using refuse as an energy resource at Ft. Bragg, NC. The technically proven system found to be most cost-effective uses mixed solid waste generated at both military (Ft. Bragg, Pope AFB) and civilian (City of Fayetteville) sources in the region. Refuse is delivered to an energy-recovery plant near the 82nd Airborne Division Heating Plant at Ft. Bragg, where it is processed into a refuse-derived fuel (RDF) by shredding and magnetic removal of ferrous materials. RDF is temporarily stored in a hopper until fed by screw conveyor to the incinerator feed hopper, from which it is ram-fed into the furnace. The stoking mechanism is a three-flight double reciprocating grate. Saturated steam at 160 psig is produced in the boiler section after furnace and fed to the main header of the nearby steam plant for distribution. Nearly 65,000 tons of refuse is processed annually. Review of alternative system reveals that if the civilian sector chooses not to participate in the plan, energy recovery from the military refuse alone is still economically attractive.

(U)

IAC SUBJECT TERMS: P--(U)Economics-Energy recovery. Technology-Incineration, Refuse-Energy resources, RDF-Solid wastes, Processing-Military wastes.

AD-A034 416

UNCLASSIFIED

PAGE

141

AD-A034 167

UNCLASSIFIED

099062

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A034 167 13/13 5/9 5/5 15/5

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLSite Concept Plan Development Manual for  
Family Housing.

(U)

DESCRIPTIVE NOTE: Final rept.,

DEC 76 45P Napier, T. R.; Moore, A.

W.;

REPT. NO. CERL-TR-D-74

PROJ: 4A763734DT08

TASK: 03

UNCLASSIFIED REPORT

DESCRIPTORS: \*Housings. \*Military personnel. Manuals. Architecture. Military planning. Contracts. Standards. Human factors engineering. Cost analysis. Cost effectiveness. Environmental management

(U)

IDENTIFIERS: Military family housing. Construction engineering. Site concept plans. Design. Sociological standards. Psychological standards. Physiological standards. Environmental standards. Development manual. WU001, AST08, PE63734A

(U)

This report prescribes activities, considerations, and procedures necessary for preparing military family housing site concept plans which achieve high environmental, sociological, psychological, and physiological standards. District personnel and contracted architect/engineer (AE) firms who are involved in concept plan development can use the manual to select the most desirable concept plan based on an evaluation of environmental and habitability considerations as well as cost comparisons. (Author)

(U)

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A034 135

13/13

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLProgramming for Habitability: Symposium  
Proceedings.

(U)

SEP 75 129P Preiser,Wolfgang ;  
 REPT. NO. CERL-Symp-Proc-D-62  
 PROJ: 4A162719A103  
 TASK: 01

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Habitability. \*Buildings.  
 Interpersonal relations. Criteria. Symposia.  
 Space environments. Formats. Workshop layout.  
 Construction. Experimental design.

Architecture

(U)

IDENTIFIERS: PE62121A, AST03, AU003.  
 PE62719A

(U)

This report contains the proceedings of the symposium 'Programming for Habitability'. The three major topics discussed were habitability criteria generation processes, communication of habitability criteria, and design and social scientist collaboration. In the first area, analogies between habitability programming and testing of NASA's space flight environments and of everyday buildings were sought. Several approaches to the formulation of habitability criteria based on research information were presented. Formats and problems for the communication of habitability criteria, specifically in the institutional section, were exposed in the second topic area. Three charrettes simulating designer and social scientist collaboration in programming various building types were held in the third area.

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AD-A034 135

UNCLASSIFIED

PAGE

142

AD-A034 131

UNCLASSIFIED

099062

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A034 131

13/13

5/1

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLAn Interim Guide to Industrialized Building  
Systems.

(U)

DESCRIPTIVE NOTE: Final rept.,  
 JAN 76 452p Lanford,Samuel T. ;  
 Csizmadia,Tibor D. :Bryant,Dale ;  
 REPT. NO. CERL-TR-D-70

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Architecture. \*Industrial engineering.  
 \*Management planning and control. \*Industrial  
 research. \*Systems engineering. Industrial  
 procurement. Methodology. Industrial plants.  
 Contract proposals

(U)

IDENTIFIERS: \*Construction engineering.  
 \*Industrialized construction. \*Industrial planning.  
 \*Industrial management. \*Construction management.  
 \*Construction program. Industrialized building

(U)

Each chapter in Volume I is devoted to a primary activity in the procurement process. The chapters are organized in the same sequence as the activities which occur in the building procurement process: Chapter 1: Feasibility, provides guidelines on whether a project should be executed through conventional means or by using industrialized building methods; Chapter 2: Programming, describes how to define and schedule the work; Chapter 3: Design and Documentation, directs specification writing and the defining of interfaces between building and site; Chapter 4: Proposal and Evaluation, provides methods for selecting the best response from industry and for awarding the contract; and Chapter 5: Construction Administration, defines the construction documents which are required of the contractor, as well as the quality control.

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A033 757 19/1

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILL

Comparison of Selected Conductive Polyolefin  
and Lead Floorings. (U)

DESCRIPTIVE NOTE: Final rept.,

NOV 76 64P Smith, Alvin ;  
REPT. NO. CERL-TR-M-193

UNCLASSIFIED REPORT

DESCRIPTORS: \*Conductivity, \*Olefin resins,  
\*Floors, \*Lead(Metal), Polymers, Explosives,  
Comparison, Materials handling, Mechanical  
properties, Chemical properties, Electrical  
properties

IDENTIFIERS: Chemical resistivity (U)

IAC ACCESSION NUMBER: PL-024742 (U)

IAC DOCUMENT TYPE: PLASTIC -HARD COPY-- (U)

This report presents the findings of a study to  
assess particular properties of four conductive  
polyolefin and two lead flooring materials. The  
study provides comparative data for use in preparing  
specifications for constructing appropriate floors  
for explosive loading and handling facilities. The  
study shows certain mechanical, chemical, and  
electrical differences among the test materials. (U)

IAC SUBJECT TERMS: P--(U)Polyolefins-Conductive  
flooring, Lead-Conductive flooring, Conductive  
flooring-Explosive loading, Materials evaluation-  
Polyolefins, Flooring-Explosive loading,  
Compatibility-Polyolefin resins, Lead azide-  
Explosive loading, ZZ Unlimited.;

AD-A033 757

UNCLASSIFIED

PAGE

143

IAC SUBJECT TERMS: P--(U)Impact strength, Honeycombs,  
Cores, Evaluation, Sandwiches, Panels, Paper,  
AD-A033 755

UNCLASSIFIED

099062

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A033 755 13/3

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILL

Evaluation of Load-Bearing Honeycomb Core  
Sandwich Panels. (U)

DESCRIPTIVE NOTE: Final rept.,

NOV 76 58P Wonnell, Edward J. ;Wendler,  
Bruce H. ;

REPT. NO. CERL-TR-D-75

PROJ: DA-4-A-762619-AT-41

TASK: 4-A-762619-AT-41-T-4

UNCLASSIFIED REPORT

DESCRIPTORS: \*Sandwich panels, Honeycomb cores,  
Fire resistance, Damage, Impact strength, Impact  
tests, Thermal conductivity, Degradation, Fungus  
deterioration, Biodeterioration, Tropical  
deterioration, Fire safety, Skin(Structural),  
Aluminum, Steel, Paper, Fiberboard

IDENTIFIERS: Durability (U)  
(U)

IAC ACCESSION NUMBER: PL-026789

IAC DOCUMENT TYPE: PLASTIC -HARD COPY--

The report describes an investigation of the  
performance of three-ply and five-ply paper honeycomb  
core sandwich panels. The core of the three-ply  
material consisted of metallic skins bonded to a  
cellular paper ply; the five-ply construction had 1/  
8-in.(3.2 mm) hardboard or asbestos board bonded  
to the metal skin which was bonded to the honeycomb  
paper. The panels were tested for fire safety,  
superficial damage, thermal conductivity, and  
durability. It was found that addition of backup  
plies did not significantly affect performance in  
thermal conductivity, durability, or large impact  
loads; however, a significant increase in performance  
was achieved in localized superficial damage and fire  
endurance times. The improved fire performance of  
the five-ply panels was still decidedly inferior to  
that of conventional wood stud construction.  
Further study should be made to determine if simple  
changes in the basic design of the panel are  
available which could bring the fire performance up  
to the level of conventional construction. (U)

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A033 754

15/5

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILL

Consolidation of RPMA at Fayetteville, N. C. Volume I. Executive Summary for the Study of Consolidation of RPMA in the Fayetteville, N. C. Area.

DESCRIPTIVE NOTE: Final rept.,  
DEC 76 30P Brown, David W. ; Kinby,  
Jeffrey G. ; Nay, Joyce L. ;  
REPT. NO. CERL-TR-C-73

(U)

## UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: See also Volume 2, AD-A030518.

DESCRIPTORS: \*Military facilities, \*Maintenance, \*Geographic areas, \*Cost analysis, Savings, Manpower, Economic analysis, Quality assurance, Military planning

IDENTIFIERS: Real property, Fayetteville (North Carolina), Pope Air Force Base, Consolidation, Fort Bragg

(U)

(U)

The report provides an executive summary of the economic analysis performed to determine the feasibility of consolidating real property maintenance activities (RPMA) in the Fayetteville, NC area (Fort Bragg/Pope AFB). Results indicate that consolidation of RPMA at Fort Bragg and Pope AFB using an Army Industrial Fund Organization (AIFO) is feasible and that savings are possible based on the assumptions made in the study. Manpower reductions of 82 to 100 (6 to 8 percent) are to be expected. No loss of responsiveness or quality of work is expected. Since the savings are based on more than one military service, some of the savings, e.g., for equipment, may be realized by the Department of Defense and not entirely at the local level.

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AD-A033 754

UNCLASSIFIED

PAGE

144

AD-A033 753

UNCLASSIFIED

099062

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A033 753

13/2

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILL

Pollution Estimation Factors.

(U)

DESCRIPTIVE NOTE: Final technical rept.,  
NOV 76 28P Schanche, Gary W. ; Cannon,  
John R. ; Greep, Larry R. ; Donahue, Bernard A.

REPT. NO. CERL-TR-N-12  
PROJ: DA-4-A-162121-A-896  
TASK: 4-A-162121-A-89601

## UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: Report on Characterization of Wastes from Army Installations.  
DESCRIPTORS: \*Military facilities, \*Water pollution, \*Air pollution, Army, Laundry operations, Blowdown, Residential section  
IDENTIFIERS: \*Emission factors, \*Solid wastes, Refuse

(U)

(U)

The Army is required to evaluate the environmental consequences of proposed actions while they are being planned. To effectively perform this task, Army planning personnel must have some means of predicting the amount and types of impacts likely to result from a particular action. For air pollution, the U.S. Environmental Protection Agency (USEPA) has developed a series of emission factors that relate pollutant quantities resulting from fuel combustion and industrial operations to the level of that particular polluting activity. This report extends the emission factor approach to allow estimation of types and amounts of solid waste and wastewater discharged from certain activities common to U.S. Army Training and Doctrine Command (TRADOC) and Forces Command (FORSCOM) military facility operation. The purpose of this report is to provide factors for estimating the amounts of air pollutants, water pollutants, and solid waste materials generated by the operation of military facilities and vehicles. The report consists of three parts based on the class of pollutants being estimated. One contains examples of how to use air pollutant emission factors and identifies Army-relevant portions of

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## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A033 684 13/8 20/3 11/6

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLDetermination of Arc Voltage, Amperage, and  
Travel Speed Limits by Bead-on-Plate  
Welding.

(U)

DESCRIPTIVE NOTE: Final rept.,

DEC 76 22P Weber, R. A. ;

REPT. NO. CERL-TR-M-197

PROJ: 4A762731AT41

TASK: T7

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Arc welding, \*Gas metal arc welding,  
Electric arcs, Shielding, Electrodes,  
Limitations, Velocity, Travel, Electric current,  
Voltage, Metal plates, Beads(U)  
(U)

IDENTIFIERS: WU007, ASI41, PE62731A

IAC ACCESSION NUMBER: MCIC-098451

IAC DOCUMENT TYPE: MCIC -HARD COPY--

This report presents the results of bead-on-plate tests to define limits for voltage, amperage, and travel speed. The work was divided into two sections: shielded metal-arc welding (SMAW) and gas metal-arc welding (GMAW). The limits for voltage and travel speed were determined for SMAW electrodes based on limits previously determined by the American Welding Society (Specification A5.1-69). Voltage and amperage limits for GMAW electrodes were determined based on types of metal transfer; travel speed limits were based on bead appearance and shape. The results of this research are not final; further work on butt welds will refine the limits. The final results will be used to prepare recommended changes to appropriate guide specifications and technical manuals.

(U)

IAC SUBJECT TERMS: M--(U) GAS METAL ARC WELDING, WELDS,  
PLATE, ENGINEERING STEEL, A36, A242, A441, A514, A527,  
A588, A710.;

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A033 530 5/9 13/13 13/2

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLDirectory of Experts on Organization and  
Management of Construction (1977), CIB W-65  
Commission.

(U)

NOV 76 55P

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Specialists, \*Construction,  
\*Directories, United States, Foreign,  
Biographies, Documents, Jobs, Corporations,  
Universities, Ranking, Organizations,  
Management(U)  
(U)

IDENTIFIERS: Experience

This directory identifies 48 experts located in 13 countries. The biographic information on each expert includes his major areas of research interests in priority order, a description of his professional experience, his publications and honors.

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AD-A033 684

UNCLASSIFIED

PAGE

145

AD-A033 530

UNCLASSIFIED

099062



UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTINUED NO. 099052

AD-A033 476

13/2

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILL

Military Construction Contract Management.  
Recommendations for Improved Military  
Construction Contract Management  
Procedures.

(U)

DESCRIPTIVE NOTE: Final rept.,

NOV 76 16P

Foster, Ronald L. ;

REPT. NO. CERL-TR-P-76

UNCLASSIFIED REPORT

DESCRIPTORS: \*Contract administration, Construction,  
Civil engineering, Army Corps of engineers,  
Regulations, Contracts, Modification,  
Processing, Methodology  
IDENTIFIERS: Claims

(U)  
(U)

This report summarizes recommendations for improved  
Corps of Engineers construction contract  
management policies and procedures for the activities  
of modifications and claims processing. Contractor  
submittals administration, and construction contract  
progress determination and reporting. The major  
product of this research was a proposed Engineer  
pamphlet 415-1-2--Modifications and Claims  
Guide. Other recommendations proposed: (1)  
changes to certain modifications and claims  
requirements of the Engineer Contract  
Instructions (ER 1180-1-1), (2) a revised  
ER 415-1-10--Contractor Submittals; and (3)  
Guidance for standardized calculation of reported  
construction contract progress values. This report  
also summarizes the considerations and methodology  
involved in the development of these recommendations.  
(Author)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTINUED NO. 099062

AD-A033 475

13/2

4/2

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILL

The Statistics of Amplitude and Spectrum of  
Blasts Propagated in the Atmosphere. Volume  
I.

(U)

DESCRIPTIVE NOTE: Final rept.,

NOV 76 63P

Schomer, P. D. ; Goff, R.

J. ; Little, L. M. ;

REPT. NO. CERL-TR-N-13

PROJ: 4A162121A896

TASK: 06

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: See also Volume 2. AD-A033  
361.

DESCRIPTORS: \*Noise pollution, \*Atmospheres, \*Wave  
propagation, \*Military facilities, Civil  
engineering, Spectrum analysis, Statistical  
analysis, Wind direction, Blast loads, Amplitude,  
Predictions, Noise reduction  
IDENTIFIERS: Blast propagation, Airblast,  
PE62121A, ASAB6, WU001

(U)

(U)

This report presents the results of a study of  
blast propagation in the atmosphere. Detailed blast  
noise measurements and information on meteorological  
conditions gathered at Fort Leonard Wood, MO  
were used to develop blast propagation statistics.  
The relationship between the specific  
meteorological and terrain conditions at Fort  
Leonard Wood and the measured blast amplitudes  
was established, as were frequency-weighted one-third  
octave spectra for use in predicting community  
response to blast noise. The weather and terrain  
dependence of blast propagation implies that the data  
gathered at Fort Leonard Wood can be used to  
predict blast amplitudes under similar conditions at  
other locations and to suggest possible relationships  
between general weather conditions and blast  
statistics. (Author)

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AD-A033 476

UNCLASSIFIED

PAGE

146

AD-A033 475

UNCLASSIFIED

099062

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A033 440 13/2 11/6

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN ILL

Study of Articulated Concrete Revetment  
 Mattress: Test and Analysis--Results of  
 FY 1975 Program.

(U)

DESCRIPTIVE NOTE: Final rept.,  
 NOV 76 66P  
 REPT. NO. CERL-TR-M-194

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Revetments, \*Mats, \*Wire,  
 Launching, Emplacement, Load distribution,  
 structural analysis, Test and evaluation,  
 Banks(waterways), Mississippi River,  
 Installation, Peak values, Concrete,  
 Reinforcement(Structures), Connectors,  
 Strength(Mechanics), Mechanical cables,  
 Tensile strength, Stainless steel, Corrosion  
 resistance, Reinforced concrete  
 IDENTIFIERS: Articulated concrete mattresses,  
 Design, Articulation

(U)

(U)

This report presents results of the fiscal year 1975 (FY 75) portion of a program to determine the magnitude and distribution of forces developed during launching of articulated concrete mattresses on the banks of the lower Mississippi River and to provide guidance for design changes in the mat structure. The FY 75 work involved monitoring the launching of some of the approximately 10,000 experimental squares cast with two 4000-lbf (17.8 kN) breaking strength longitudinal wires instead of three. Results indicate that the two longitudinal-wire mat will have adequate strength. Results also confirm conclusions drawn from earlier work in the program by these authors (AD-A021 774, 1976).

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AD-A033 440

UNCLASSIFIED

PAGE

147

AD-A033 363

UNCLASSIFIED

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A033 363 13/13 15/7 5/1

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN ILL

Information Flow for Military  
 Construction.

(U)

DESCRIPTIVE NOTE: Interim rept.,  
 OCT 76 120P Johnson, J. H. ;  
 REPT. NO. CERL-IR-ADS-2  
 PROJ: 4A762619AT41  
 TASK: 01

## UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: Report on Coordination and  
 integration of AEADS Modules.  
 DESCRIPTIONS: \*Construction, \*Army planning,  
 Military facilities, Army Corps of Engineers,  
 Management information systems, Management planning  
 and control, Information theory, Network flows,  
 United States, Overseas, Army operations, Army  
 budgets, Department of Defense, Policies,  
 Planning programming budgeting, Flow charting  
 IDENTIFIERS: PE62619A, W0020, AST41

(U)

(U)

This report presents information flow networks which correlate the operations and information flow supporting Army Military Construction (MCA) projects within the Corps of Engineers during the planning and programming phase. The diagrams are developed at three levels of functional inclusiveness to provide pertinent, ordered, and logical information flow to each reviewer of the MCA process. Identification of representative procedures to the level necessary for a fundamental understanding necessitated the 30 information flow networks presented.

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062	DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062
AD-A033 223 13/2	AD-A033 361 13/2 4/2
CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN ILL	CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN ILL
Water/Wastewater Survey Guidelines. (U)	The Statistics of Amplitude and Spectrum of Blasts Propagated in the Atmosphere Volume II. Appendices C through E. (U)
DESCRIPTIVE NOTE: Final rept., NOV 76 59p Larry A. ;Donahue,Bernard A. ;Cannon,John R. ; REPT. NO. CERL-TR-N-11 PROJ: 4A162121A896 TASK: 01	DESCRIPTIVE NOTE: Final rept., NOV 76 761p Schomer,P. D. ;Goff,R. J. ;Little,L. M. ; PROJ: 4A162121A896 TASK: 06
UNCLASSIFIED REPORT	UNCLASSIFIED REPORT
DESCRIPTORS: *Water pollution, *Waste water, *Surveys, Planning, Regulations, Sources, Water, Water quality, Sampling, Wastes(Industrial) IDENTIFIERS: WU004, AS896, PE62121A (U) (U)	SUPPLEMENTARY NOTE: See also Volume 1, AD-A033 475. DESCRIPTORS: *Noise pollution, *Meteorological data, Civil engineering, Military facilities, Blast loads, Tables(Data), Environmental engineering, Noise reduction, Wave propagation, Statistical analysis IDENTIFIERS: Airblast, Blast noise, AS896, WU001, PE62121A (U) (U)
This report--one of a series of three which supply the means for gathering background data on solid waste, air, and water/wastewater--provides assistance in planning and performing water/wastewater surveys. It provides the format for planning an appropriate survey given a specific need for data. The types of surveys covered include regional and installation surveys designed to gather background information, and regulation compliance, waste source evaluation, and ambient water quality evaluation surveys, which provide information for regulation compliance inquiries, environmental impact analyses, problem characterizations, and design analyses. Additionally, the report provides background information on performing mass balances, developing sampling schedules, selecting sampling points, evaluating wastewater sources, and taking flow measurements. (Author) (U)	This volume presents the spectra data derived from the analysis of the blast noise and meteorological measurements taken at Fort Leonard Wood, MO, and described in Volume I. One-third octave spectra, absolute, relative, and difference energy-average one-third octave spectra, and difference distributions are presented. (Author) (U)
AD-A033 223 148	AD-A033 361
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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A032 726 13/13 13/3

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN ILL

Field Experiment on a Prefabricated Expandable Foam/Wood Structure.

(U)

DESCRIPTIVE NOTE: Interim rept.,  
OCT 76 54P Trent, R. L.; Whiteside, T.  
M.; Robertus, J.;  
REPT. NO. CERL-IR-C-50  
PROJ: 4A764717DT34  
TASK: 04

UNCLASSIFIED REPORT

DESCRIPTORS: \*Prefabricated buildings, \*Foam, structures, Construction materials, Expandable facilities, Army Corps of Engineers, Military warfare, Fabrication, Field tests, Polyurethane resins, Lumber, User needs, Army operations, Cost effectiveness, Computer aided design  
IDENTIFIERS: ASTJ4, WU003, PE64717A

IAC ACCESSION NUMBER: PL-025069  
IAC DOCUMENT TYPE: PLASTIC -MICROFICHE--

This report, the third in a series of report covering development of multi-purpose structural components, documents the findings, results, and conclusions of a field experiment to fabricate and erect the components of a prefabricated foam/wood theater of operations (TO) structure. The floor, wall, and roof panels were fabricated off-site and shipped without damage to the erection site; the foundation bents and roof trusses were fabricated on-site. These multi-purpose structural components were then assembled and erected on a building site at Fort Belvoir, VA. Interior finishing and services were provided to enable the completed structure to be used as a classroom, as well as a demonstration facility. (Author)

(U)

IAC SUBJECT TERMS: P--(U) Foam/wood-Prefabricated structures, Urethane/wood-Prefabricated structures, Prefabrication-Floors, Design-Building construction, Costs-Erection methods, Field testing-Erection methods, Prefabrication-Walls, Prefabrication-Roofing, Erection methods-Military applications, ZZ Unlimited;

AD-A032 726

UNCLASSIFIED

PAGE

149

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A032 569 13/3 9/5

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN ILL

Evaluation of Load-Indicating Devices (LIDS) for Mobile Construction Cranes.

(U)

DESCRIPTIVE NOTE: Final rept.,  
OCT 76 96P Rosenfield, Myer J.; Wendler, Bruce H.;  
REPT. NO. CERL-TR-M-188

UNCLASSIFIED REPORT

DESCRIPTORS: \*Cranes, \*Booms(Equipment), \*Loads(Forces), \*Indicators, Angles, Moments, Computers, Detectors, Calibration  
IDENTIFIERS: \*Load indicating devices

(U)  
(U)

Load- and boom-angle-indicating devices and load moment computers for construction cranes are generically termed load-indicating device systems (LIDS). Several of these systems were laboratory tested to evaluate them for compliance with Society of Automotive Engineers (SAE) performance standards. Testing included calibration of the load or angle sensor and operation of the systems at temperatures between -50 and +150 F(-45.6 and 65.6 C). Results of the tests and an analysis of the data are presented. Functioning ability and accuracy of load-, angle- or radius-, and load-moment indicating systems were found to be satisfactory.

(U)

(Author)

AD-A032 569

UNCLASSIFIED

099062

UNCLASSIFIED

DOC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A032 126 18/6 9/4 20/6

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN ILL

Fiber Optic Communications Link Performance in EMP and Intense Light Transient Environments.

(U)

DESCRIPTIVE NOTE: Interim rept.,

OCT 76 24P McCormack, Ray G. ;Sieber,

David C. ;

REPT. NO. CERL-IR-E-94

PROJ: 4A762719AT40

TASK: A1

UNCLASSIFIED REPORT

DESCRIPTORS: \*Fiber optics transmission lines, \*Transient radiation effects, Electromagnetic pulses, Light pulses, Radiation resistance, Radiation hardening, Data transmission systems, Electromagnetic interference, Test methods, Light emitting diodes

IDENTIFIERS: PE62719A, WU022, AST40

(U)  
(U)

Optical fiber communications links are a possible means for providing voice and data transmission electromagnetic pulse (EMP) hardened facilities. This report describes evaluations of the effects of high-level EMP fields and intense light flashes on fiber links. The results show that neither EMP fields nor light transient have any appreciable effect on the fiber links. Further evaluations, which were performed in EMP fields to compare the data transmission system using an optical fiber with an equivalent system using conventional cabling, showed the conventional system is susceptible to EMP. The optical link is thus superior in the EMP environment. (Author)

(U)

AD-A032 126

UNCLASSIFIED

PAGE

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AD-A032 125

UNCLASSIFIED

099062

UNCLASSIFIED

DOC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A032 125 13/13

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN ILL

A Preliminary Concept for a Design Criteria Management System.

(U)

DESCRIPTIVE NOTE: Special rept.,

SEP 76 87P O'Connor, Michael J. ;

Jordani, David A. ;

REPT. NO. CERL-SR-P-74

PROJ: 4A762719AT05

TASK: 02

UNCLASSIFIED REPORT

DESCRIPTORS: \*Military facilities, \*Construction, \*Military construction, \*Buildings, Information exchange, Management information systems, Architects, Engineers, Concept formation, Data bases, Automation, Cost estimates

(U)

IDENTIFIERS: Design, Subsystems, Pe62719A,

WU002, AST05

(U)

The Corps of Engineers' design process relies on the relevancy and currentness of the data used in facility design and the transfer of these data to and from a variety of design and review levels. This report presents a conceptual description of an effective system for the organization, management, and communication of Department of Defense and Corps of Engineers military construction design criteria. The conceptual system comprises three major subsystems: (1) the Standard Design Criteria Subsystem provides for the handling, consistency checking, and production of standard design criteria; (2) the Project-Specific Design Criteria Subsystem permits the introduction of project-specific criteria and the merging of them with standard criteria; and (3) the Facility Criteria File Generation Subsystem translates the criteria into an appropriate format and relates the criteria to the design procedures. (Author)

(U)

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A032 124 13/13

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLPreliminary Design and Construction  
Guidelines for Vertical Construction in  
Desert and Tropical Theaters of  
Operations.

DESCRIPTIVE NOTE: Interim rept.,

OCT 76 37P

REPT. NO. CERL-IR-C-74 Kao, Anthony ;Cook, Jere ;

PROJ: 4A762719AT41

TASK: T5

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Construction, \*Tropical regions,  
Deserts, Shelters, Field conditions, Hot  
weather, Climate, Construction materials,  
Termites, Structural engineering, Environmental  
protection

IDENTIFIERS: PE62719A, WU004, AST41

This study provides a simple description of the  
basic principles and guidelines that should be  
observed in designing and planning shelters in desert  
and tropical climates. The study identifies  
preferred materials, design, and construction details  
for use in the theater of operations (TO).Findings are based on actual Army field  
experience and research of existing literature  
pertinent to construction in desert and tropical  
regions. (Author)

(U)

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A031 781 9/1 9/3

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLInvestigation of Ground Fault Circuit  
Interrupters.

DESCRIPTIVE NOTE: Final rept.,

SEP 76 125P

G. ; Ford, W. D. ; McCormack, R.

REPT. NO. CERL-TR-E-92

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Circuit breakers, \*Electric power  
distribution, \*Faults, \*Ground(Electrical),  
Circuits, Construction, Army corps of engineers,  
Condensation, Thermal cycling tests,  
Radiofrequency interference, Microwaves, Ultrahigh  
frequency, Electromagnetic interference, Threshold  
effects, Electric current, Vibration, Laboratory  
tests

IDENTIFIERS: \*Ground fault circuit interrupters

The objective of this study was to ascertain the  
capabilities and limitations of the Ground Fault  
Circuit Interrupters (GFCI) used on Corps of  
Engineers (COE) supervised construction sites.  
Laboratory tests were conducted to determine  
(1) if GFCI samples from different  
manufacturers met the trip threshold design  
specifications of 5 mA plus or minus and (2)  
if condensation, hot-cold environment, vibration, and  
RF, UHF, and microwave fields adversely affected  
their operation. A limited field survey of COE  
supervised construction sites was conducted to  
evaluate the actual application of the GFCI.  
This survey included trip threshold measurements  
and discussions with COE and contractor personnel  
after nuisance tripping had occurred.

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A031 450 1/3 17/7 20/1

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN ILL

User Manual: Interim procedure for Planning Rotary-Wing Aircraft Traffic Patterns and Siting Noise-Sensitive Land Uses.

(U)

DESCRIPTIVE NOTE: Interim rept.,

SEP 76 40P Schomer, P. D.; Homans, B.

L. :

REPT. NO. CERL-IR-N-10

PROJ: DA-4-A-762720-A-896

TASK: 4-A-762720-A-89602

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: See also AD-A031 449.

DESCRIPTORS: \*Rotary wing aircraft, \*Land use, \*Aircraft noise, \*Helicopters, \*Air traffic control system analysis, \*Flight paths, Planning, Patterns, Contours, Urban areas, Landing fields, Range(Distance)

IDENTIFIERS: \*Flight corridors, \*Air corridors, User manuals, Corridors(Trajectories)

(U)

This report presents (1) interim procedures for determining the location of rotary-wing aircraft traffic patterns and ingress and egress corridors into an airfield/heliport area to avoid conflict with noise-sensitive land uses, and (2) criteria for siting noise-sensitive land uses with respect to established airfield or heliport plans. The procedures are based on interim criteria established in a companion report, Technical Background: Interim Criteria for Planning Rotary-Wing Aircraft Traffic Patterns and Siting Noise-Sensitive Land Uses (Construction Engineering Research Laboratory Interim Report N-9 1976). The presentation of the procedures includes a history of noise impact measures, a background of the development of noise contours, and tables for finding the noise impact. A complete descriptive example of the use of the procedures is presented as an aid to the reader. (Author)

(U)

AD-A031 450

UNCLASSIFIED

PAGE

152

AD-A031 449

UNCLASSIFIED

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## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A031 449 1/3 17/7 20/1

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN ILL

Technical Background: Interim Criteria for Planning Rotary-Wing Aircraft Traffic Patterns, and Siting Noise-Sensitive Land Uses.

(U)

DESCRIPTIVE NOTE: Interim rept.,

SEP 76 17P Schomer, P. D.; Homans, B.

L. :

REPT. NO. CERL-IR-N-9

PROJ: DA-4-A-762720-A-896

TASK: 4-A-762720-A-89602

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: See also AD-A031 450.

DESCRIPTORS: \*Rotary wing aircraft, \*Land use, \*Aircraft noise, \*Helicopters, \*Air traffic control system analysis, \*Flight paths, Planning, Urban areas, Patterns, Landing fields, Range(Distance)

IDENTIFIERS: \*Flight corridors, \*Air corridors, \*Corridors(Trajectories)

(U)

This report presents interim criteria for locating rotary-wing aircraft traffic patterns and ingress and egress corridors into an airfield/heliport to avoid conflict with noise-sensitive land uses, and provides criteria for planners to site noise-sensitive land uses with respect to the established airfield/heliport and established flight corridors. These interim criteria are required because the exact Air Force technique for predicting fixed-wing aircraft noise cannot currently be used due to the unpredictability of helicopter flight patterns; these criteria are the basis for interim procedures established in a companion report, User Manual: Interim Procedure for Planning Rotary-Wing Aircraft Traffic Patterns and Siting Noise-Sensitive Land Uses (Construction Engineering Research Laboratory Interim Report N-10, 1976). (Author)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A031 000 13/13 15/5

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILL

Procuring Today's Building Technology:  
Volume I. A Summary.

(U)

DESCRIPTIVE NOTE: Special rept.,  
SEP 76 34P Carroll, Michael G. ;  
REPT. NO. CERL-SR-D-72-Vol-1  
PROJ: DA-4-A-762719-AT-02  
TASK: 4-A-762719-AT-0203

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: See also Volume 2, AD-A030

520.  
DESCRIPTORS: \*Construction, \*Military procurement,  
Technology, Law(Jurisprudence), Regulations,  
Standardization, Procurement, Buildings,  
Prefabricated buildings, Modular construction  
IDENTIFIERS: \*Construction engineering (U)  
(U)

This report summarizes the findings of a study to  
assess ways of procuring present building technology.  
The study analyzed the state of the art of building  
technology and reviewed various procurement processes  
within the given laws, regulations, and policies.  
The results indicate that the evolution of  
procurement techniques has not kept pace with the  
evolution of building technology. The traditional  
procurement process--formal advertising--is not  
effective in procuring today's building technology.  
There are other procurement processes which are  
better in that respect; their use, however, is  
restricted by traditional interpretations of the laws  
and by the regulatory inertia of traditional  
procurement techniques. Nonetheless, given the  
general intent of Congress and given some needed  
revisions, there exist procurement processes  
consonant with the best available building  
technology. (Author) (U)

AD-A031 000

UNCLASSIFIED

PAGE

153

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A030 566 11/3

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILL

Review of Formulation and Testing Procedures  
for Coal Tar Epoxy (SSPC Paint 16-  
68T).

(U)

DESCRIPTIVE NOTE: Final rept.,  
SEP 76 57P Beitelman, A. ;  
REPT. NO. CERL-TR-M-192

UNCLASSIFIED REPORT

DESCRIPTORS: \*Plastic paints, \*Epoxy resins, \*Coal  
tar, \*Specifications, Paints, Steel, Structural  
steel, Pitch(Material), Replacement, Polyamide  
plastics, Formulations, Viscosity, Odors,  
Physical properties, Test methods  
IDENTIFIERS: RT-12 coal tar pitch, Sag tests (U)  
(U)

IAC ACCESSION NUMBER: PL-024514

IAC DOCUMENT TYPE: PLASTIC -HARD COPY--  
The Corps of Engineers uses the Steel  
Structures Painting Council (SSPC)  
Specification 16-68T for coal tar epoxy paint  
extensively. Although performance of the material  
is unquestioned, difficulty in obtaining the coal tar  
pitch used in its manufacture has been experienced  
during energy shortages; this problem has stimulated  
efforts to revise the specification. This study  
critically examined the test methods and requirements  
set forth in the specification and evaluated several  
itches as possible replacements. It is recommended  
that the sag test be simplified without altering the  
test requirement; that the nonvolatiles requirement  
be altered if a proposed change in the packaging  
ratio is implemented; and that coal tar pitch RT-12  
be used as a replacement for the pitch now specified--  
if requirements can be written to provide a pitch  
with a minimum of water-extractable material, and if  
the odor requirement of the present specification is  
eliminated. (Author) (U)

IAC SUBJECT TERMS: P--(U)Paints-Structural steel,  
Formulation-Coal tar/epoxy/polyamide, Coal tar pitch-  
Paints, Coal tar epoxy-paints, Epoxy resins-  
Plastic paints, Polyamides-Plastic paints,  
Specifications-Pitch/epoxy/polyamide, Specifications-  
Paints, Coal tar pitch-Epoxy/polyamide, ZZ

AD-A030 566

UNCLASSIFIED

099062



## UNCLASSIFIED

DNC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A030 565 11/6 11/3 13/8

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLChloride Sensitivity of the Corrosion Rate of  
Zinc-Coated Reinforcing Bars.

(U)

DESCRIPTIVE NOTE: Interim rpt.,  
SEP 76 31P Hahn, C.; Cato, S.;

Mattheessen, W.;

REPT. NO. CERL-IR-M-191

PROJ: DA-4-A-762719-AT-41

TASK: 4-A-762719-AT-41-I-7

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Steel. \*Reinforced concrete.  
\*Corrosion inhibition. \*Zinc coatings. Corrosion.  
Concrete, protective coatings. Chlorides.  
Sensitivity, life expectancy, test methods.  
Reinforcing materials. Cracking (Fracturing)

(U)

This laboratory study was undertaken to determine whether zinc coatings can be relied on for long-term protection of reinforcing bars subject to environments of variable salt concentrations. Hot-dip galvanized reinforcing bars were coupled to bare carbon steel rebars in various concentrations of CaCl<sub>2</sub> in saturated Ca(OH)<sub>2</sub>-distilled water solutions. Galvanic current output was monitored as a function of time and percent CaCl<sub>2</sub> for a zinc-steel couple with an anode-cathode area ratio of unity. Current output became stable after 20 days for CaCl<sub>2</sub> concentrations less than 1 percent. For concentrations at 1 percent or greater, current fluctuations were cyclical, increasing in magnitude as percent CaCl<sub>2</sub> increased. At 4 percent CaCl<sub>2</sub>, current output rose sharply. (Author)

(U)

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DNC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A030 520 13/12 15/5 5/3

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLProcuring Today's Building Technology.  
Volume II.

(U)

DESCRIPTIVE NOTE: Special rept.,  
SEP 76 231P Carroll, Michael G.;

REPT. NO. CERL-SR-D-72

PROJ: DA-4-A-762719-AF-02

TASK: 4-A-762719-AT-0203

## UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: See also Volume 2, AD-A031  
000.

DESCRIPTORS: \*Procurement. \*Buildings. \*Contracts.  
Law (Jurisprudence). Modular construction.  
Military requirements. Cost effectiveness.  
Military organizations. Feedback  
IDENTIFIERS: Advertising. Formal advertising.  
Industrial buildings. Legal constraints.  
Subsystems

(U)

(U)

This report summarizes the findings of a study to assess ways of procuring present building technology. The study analyzed the state of the art of building technology and reviewed various procurement processes within the given laws, regulations, and policies. The results indicate that the evolution of procurement techniques has not kept pace with the evolution of building technology. The traditional procurement process--formal advertising--is not effective in procuring today's building technology. There are other procurement processes which are better in that respect; their use, however, is restricted by traditional interpretations of the laws, and by the regulatory inertia of traditional procurement techniques. Nonetheless, given the general intent of Congress and given some needed revisions, there exist today procurement processes consonant with the best available building technology. (Author)

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DDC REPORT BIBLIOGRAPHY	SEARCH CONTROL NO. 099062	DDC REPORT BIBLIOGRAPHY	SEARCH CONTROL NO. 099062
AD-A030 519	5/1 15/5	AD-A030 518	5/1 15/5
CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN ILL		CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN ILL	
Consolidation of RPMA at Fayetteville, NC. Volume III. Cost Analysis Support and Backup Data for the Consolidation of RPMA in the Fayetteville, NC Area.	(U)	Consolidation of RPMA at Fayetteville, NC. Volume II. Summary Cost Analysis for Consolidation of RPMA in the Fayetteville, NC Area.	(U)
DESCRIPTIVE NOTE: Final rept., SEP 76 380P		DESCRIPTIVE NOTE: Final rept., SEP 76 81P	
:Nav,J. L.;		:Nav,J. L.;	
REPT. NO. CERL-TR-C-73-Vol-3		REPT. NO. CERL-TR-C-73-Vol-2	
PROJ: CERL-75-5		PROJ: CERL-75-5	
UNCLASSIFIED REPORT		UNCLASSIFIED REPORT	
SUPPLEMENTARY NOTE: See also Volume 4, AD-A041 331.		SUPPLEMENTARY NOTE: See also Volume 3, AD-A030 519.	
DESCRIPTORS: *Maintenance management, *Cost analysis, *Integrated systems, *Army planning, *Cost effectiveness, *Army operations, Economic analysis, Data acquisition, Army budgets	(U)	DESCRIPTORS: *Maintenance management, *Cost analysis, *Army planning, *Integrated systems, *Cost effectiveness, *Army operations, Economic analysis, Data acquisition, Army budgets	(U)
IDENTIFIERS: RPMA(Real Property Maintenance Activities), *Real property maintenance activities, *Army industrial fund organization, Consolidation	(U)	IDENTIFIERS: RPMA(Real Property Maintenance Activities), *Real property maintenance activities, *Army industrial fund organization, Consolidation	(U)
This report presents the cost analysis support and the backup economic data used by the U.S. Army Construction Engineering Research Laboratory's (CERL) rpma Study Team to evaluate the feasibility of consolidating real property maintenance activities (RPMA) at Fort Bragg and Pope AFB, NC. Included are the research study plan, the Army Industrial Fund description and cash flow procedures, the legal analysis for consolidation actions, general concept of the Army Industrial Fund Organization, an analysis of the fiscal year (FY) 75 current method of operation and the proposed consolidation, implementation costs, and an environmental impact assessment. (Author)	(U)	This report summarizes the results of an economic analysis performed to determine the feasibility of consolidating real property maintenance activities (RPMA) in the Fayetteville, NC area (Fort Bragg/Pope AFB). Results indicate that consolidation of RPMA at Fort Bragg and Pope AFB using an Army Industrial Fund Organization is feasible and economically desirable. Based on the actual fiscal year (FY) 75 workload, the consolidated organization could generate savings of between \$814,000 (2 percent of combined FY 75 cost) and \$1,184,000 (3 percent of combined FY 75 cost). Manpower reductions of 83 to 100 (6 to 8 percent) are to be expected. No loss of responsiveness or quality of work is expected. The new implementation costs of \$718,000 should be recoverable within the first year of operation. (Author)	(U)
AD-A030 519	UNCLASSIFIED	AD-A030 518	UNCLASSIFIED
PAGE	155	PAGE	155
099062		099062	

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A030 453

13/2

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLMigration of Explosives and Chlorinated  
Pesticides in a Simulated Sanitary  
Landfill.

(U)

DESCRIPTIVE NOTE: Final rept. Jul 73-Mar 76,

SEP 76 48P Conley, Kathy A.; Mikucki,

Walter J.;

REPT. NO. CERL-TR-N-8

PROJ: DA-4-A-161101-A-91-D

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Waste disposal; \*DDT, \*TNT, Solid  
wastes, Simulation, Leaching, Migration,  
Explosives, Pesticides, Ground water, Land use  
IDENTIFIERS: Sanitary landfill

(U)

(U)

This report presents results of a series of tests to determine whether the hazardous substances DDT and TNT will leach from or migrate through a simulated sanitary landfill. DDT and two of its degradation products, DDE and DDE, were not recovered from samples of the leachates tested. Analysis of soil core samples showed some vertical migration and very little horizontal migration. TNT analysis in leachates was accomplished by applying a sensitive method of analysis--pulse polarography. Fewer than five parts per billion of TNT were found in leachates from soil systems. TNT was detected in core samples from a soil/solid waste system, but not from a soil system. It is theorized that some channelization of flow occurred.

(U)

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A030 397

11/3

11/6

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLMaintenance Painting of Steel  
Structures.

(U)

DESCRIPTIVE NOTE: Technical manuscript,

SEP 76 17P Beitelman, Alfred;

REPT. NO. CERL-Technical-Ms-M-189

## UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: Presented at the Maintenance Engineering Seminar, 29-30 Jun 76, Greenup, Ky.  
DESCRIPTORS: \*Paints, \*Corrosion inhibition,  
\*Steel, \*Structures, Coatings, Maintenance,  
Surfaces, Preparation, Specifications,  
Inspection, Corrosion

(U)

This paper is intended to assist those responsible for mitigating corrosion on existing structures. The following factors involved in maintenance painting are discussed: (1) degree of destruction of existing coatings that can be allowed before repainting is required; (2) determination of the most economical surface preparation; (3) selection of the paint system which gives the most economical performance; (4) preparation of specifications covering the work to be done; and (5) inspection of the cleaning and painting operation. (Author)

(U)

AD-A030 453

UNCLASSIFIED

PAGE

156

AD-A030 397

UNCLASSIFIED

099062

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 090052

AD-A030 314

11/6

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILL

Aligned Ferrous Martensite. (U)

DESCRIPTIVE NOTE: Interim rept.,

SEP 76 19P Mohammad, Khobaid ;

REPT. NO. CERL-IR-M-190

PROJ: DA-4-A-161102-AT-23

TASK: 4-A-161102-AT-2302

UNCLASSIFIED REPORT

DESCRIPTORS: \*Martensite, \*Alignment, \*Phase transformations, Steel, Stresses, Deformation, Austenite, Crystal structure, Orientation(Direction), Stress strain relations, Annealing, Quenching, Metallography

IDENTIFIERS: Iron alloy 20Ni 5Mn

IAC ACCESSION NUMBER: MCIC-097666

IAC DOCUMENT TYPE: MCIC -HARD COPY--

Previous research has shown that an Fe-Ni-Mn alloy may be suitable for producing aligned martensite. This work is concerned with the texture and transformation characteristics of the Fe-20%Ni-5%Mn alloy. The austenitic deformation texture was found to be typical face-centered cubic (fcc) texture--(123) (412) rather than (100) (011) as thought previously.

Subsequent annealing at 1000 C for 30 min produced a strong annealing cube texture (011) (100). A partial alignment of martensite was obtained by stress-assisted transformation. Nearly 75 percent martensite was aligned when a strongly cube-textured specimen was strained 3 percent at 45 degrees to the rolling direction, followed by a liquid nitrogen quench of 10 hours. (Author)

IAC SUBJECT TERMS: M--(U)Iron Alloy, Nickel Addition, Manganese Addition, Martensite, Deformation, Transformation, Annealing, Alloy Development, Hot Rolling, Texture, Composition, Stress Strain Data, Microstructure, Castings, Pole Figures.;

AD-A030 314

UNCLASSIFIED

PAGE

157

AD-A030 092

UNCLASSIFIED

099062

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A030 092

15/5

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILL

User Evaluation of the Fort Knox Industrialized BQ (Bachelor Officers' Quarters) Project. (U)

DESCRIPTIVE NOTE: Special rept.,

SEP 76 79P Poskus, K. K. ;

REPT. NO. CERL-SR-D-71

PROJ: DA-4-A-762719-AT-02

TASK: 4-A-762719AT0201

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: See also report dated Dec 75, AD-A019 929.

DESCRIPTORS: \*Military facilities,

\*Housing(Dwellings), \*User needs,

Questionnaires, Officer personnel, Noise

reduction, Laundry operations, Kentucky

IDENTIFIERS: BQ(Bachelor Officers' Quarters),

Bachelor Officers' quarters, Fort

Knox(Kentucky), Evaluation

The research objective was to evaluate user satisfaction with the first BQ (Bachelor Officers' Quarters) constructed by industrialized building methods. This BQ, Steindam Apartments at Fort Knox, KY, was completed and occupied in late 1974. It was compared to a conventionally built BQ (Glassford Hall, Fort Huachuca, AZ) of similar age and design, and to another BQ, located at Fort Knox but of older vintage and different design (Craig Apartments). Evaluation measures included satisfaction ratings with aspects of the building, open-ended comments, background characteristics of the occupants, and physical measures of the building features. The results indicated that the two new BQs were rated equally in overall satisfaction and that the industrially constructed BQ was rated superior in exterior appearance, noise insulation, storage areas, lounge facilities, and laundry facilities. Both new BQs were more satisfactory to the users than the older BQ at Fort Knox. (U)

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO 099062

AD-A030 091 13/13 5/5

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLConceptualization for the Generation of  
Habitability Requirements.

(U)

DESCRIPTIVE NOTE: Interim rept.,

SEP 76 58P Davis, Thomas A. ;

REPT. NO. CERL-IR-D-69

PROJ: DA-4-A-762719-AT-03

TASK: DA-4-A-762719AT0201

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Buildings, \*Habitability, \*Military  
facilities, Requirements, Reviews, Health,  
Safety, Performance, User needs, Criteria  
IDENTIFIERS: Objectives

(U)  
(U)

This report defines habitability and identifies documents concerning habitability in the context of the facility delivery process of the Corps of Engineers. This process is described as a cycle of events including master planning, construction programming, project development, design, and construction. Occupant needs for health, safety, performance, and satisfaction, and goals and objectives for occupant needs are conceptualized. Habitability requirements for occupant needs are conceptualized and operationally defined. It is concluded that occupant needs and habitability requirements statements are necessary links in the generation of habitability criteria for the facility delivery process.

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## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A029 911 13/13 10/2

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLFailure Analysis of Ozark, Arkansas, Power  
Plant Socket-Head Cap Screws.

(U)

DESCRIPTIVE NOTE: Final rept.,

AUG 76 29P Cox, E. P. ;

REPT. NO. CERL-TR-M-186

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Screws, \*Failure(Mechanics),  
\*Fracture(Mechanics), \*Turbines,  
Metallography, Heat treatment, Turbogenerators,  
Visual inspection, Stress corrosion  
IDENTIFIERS: Cap screws, Socket head screws, Dye  
penetration, Water turbines, Hydroelectric power  
plants

(U)

(U)

This research analyzed the socket-head cap screws which failed in the turbines of the Ozark Power Plant, Ozark, AR. The cause of failure was found to be fatigue in improperly heat-treated cap screws. The reduced fatigue strength of the cap screws was further aggravated by the presence of a sharp fillet where the shaft and head joined and by the nonuniform preloads imposed on the cap screws during installation. Several procedures are recommended to improve the service life of the turbine cap screws: (1) Insure that all cap screws or studs are heat-treated in the following manner: (a) Provide full normalizing heat treatment (after forging) at 1600 F (870 C). (b) Austenitize for 2 to 3 hr at 1550 F (843 C), and quickly oil quench. (c) Temper at 800 F (423 C) to a hardness of 38 to 42 Rc (approximately 3 1/2 hr). (2) Use rolled rather than machined threads for both cap screws and studs. The threads should be rolled on after heat treatment. (3) Keep cap screw and stud hardness below 44 RC to prevent stress corrosion cracking. Machine cap screw and stud/nut seats to insure good alignment and perpendicularity; this will eliminate bending stresses.

(U)

AD-A030 091

UNCLASSIFIED

PAGE

158

AD-A029 911

UNCLASSIFIED

099062

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A029 661 13/13 5/5

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILL

Conceptualization of Habitability Expressions  
for the Habitability Data Base.

(U)

DESCRIPTIVE NOTE: Interim rept.,  
AUG 76 61P Davis, T. A. ;  
REPT. NO. CERL-IR-D-68  
PROJ: DA-4-A-762719-AT-03  
TASK: 4-A-762719-AT-0301

UNCLASSIFIED REPORT

DESCRIPTORS: \*Habitability, \*Architecture, \*Human  
factors engineering, Data bases, Military  
requirements, Safety, Health, Cost effectiveness,  
Military facilities, Military personnel

(U)

Habitability is defined and documents containing  
statements on habitability are identified within the  
context of the Corps of Engineers facility  
delivery process. This process is described as a  
cycle of events that includes master planning,  
construction programming, project development,  
design, and construction. Three generic and ten  
specific habitability expressions are conceptualized  
which relate properties of occupant activities  
(physical, physiological, and mental) to  
properties of facilities (dimensions of length,  
width, light and sound levels, temperature, etc.).  
Three expressions of cost-effectiveness are  
conceptualized as ratios of the dollar cost of a  
facility, facility property, or property categories  
divided by units of occupant needs for health,  
safety, performance and satisfactions. Structural,  
content, and technical assumptions are given, and  
data categories are defined by example. Further  
steps toward the development of prototype expressions  
are outlined. (Author)

(U)

AD-A029 661

UNCLASSIFIED

PAGE

159

AD-A029 633

UNCLASSIFIED

099062

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A029 633 13/2

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILL

Air Pollution Survey Guidelines for Army  
Installations.

(U)

DESCRIPTIVE NOTE: Final rept.,  
JUL 76 49P Donahue, Bernard A. ;  
Schanche, Gary W. ;  
REPT. NO. CERL-TR-N-5  
PROJ: DA-4-A-162121-A-896  
TASK: 4-A-162121-A-89601

UNCLASSIFIED REPORT

DESCRIPTORS: \*Air pollution, \*Military facilities,  
\*Emission control, \*Pollution abatement,  
\*Management planning and control, Army planning,  
Army operations, Emission, Monitoring, Monitors,  
Air quality, Air, pollutants, Dispensing,  
Diffusion, Mathematical models, Meteorological  
data

(U)

This report on air pollution survey techniques is  
the second of a series presenting solid waste, air  
pollutions, and water pollution survey guidelines.  
It is intended primarily for use by installation  
planning, operating, and maintenance personnel. The  
report presents guidelines for developing a  
comprehensive air pollution management plan and  
contains information on emission inventory  
procedures, source categorization, emission  
calculations, and regulation comparisons. Air  
pollution dispersion is discussed, along with factors  
affecting dispersion, such as source characteristics,  
meteorological factors, and physiological effects.  
A section about ambient air monitoring discusses  
the classification of common air pollutants and some  
general principles of an ambient air-monitoring  
network, such as instrument selection and optimum  
instrument siting. (Author)

(U)

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099052

AD-A029 410 13/13 19/1 20/3

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLCompatibility Study of Conductive  
Flooring.

(U)

DESCRIPTIVE NOTE: Final rept.,

AUG 76 19P Smith, Alvin ;

REPT. NO. CERL-TR-M-131

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Floor coverings, \*Electrostatic  
change, \*Premature functioning(Ordinance),  
\*Explosives, \*Electrical resistivity,  
Compatibility

IDENTIFIERS: \*Conductive flooring (U)

(U)

IAC ACCESSION NUMBER: PL-023828

IAC DOCUMENT TYPE: PLASTIC -HARD COPY--

This report presents the findings of a study performed to assess certain physical properties of four types of conductive flooring-conductive terrazzo, conductive vinyl, conductive rubber, and monolithic trowel-on. The study provides comparative data on which specifications for flooring in explosive manufacturing, loading, and handling facilities can be based. No attempt was made to judge whether any particular material met any existing criteria. The results show a wide range of properties with respect to resistance to chemical attack, spark resistance, and electrical resistivity. (Author)

(U)

IAC SUBJECT TERMS:

P--(U)Electrical resistance-  
Conductive flooring, Chemical resistance-Conductive  
vinyl, Spark resistance-Conductive terrazzo, Wear-  
Conductive rubber, Flooring-Conductive, ZZ  
Unlimited.;

AD-A029 410

UNCLASSIFIED

PAGE

160

AD-A029 409

UNCLASSIFIED

099062

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A029 409 13/13 19/1 20/3

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLEffects of Temperature Cycling on Selected  
Conductive Flooring.

(U)

DESCRIPTIVE NOTE: Final rept.,

AUG 76 11P Smith, Alvin ;

REPT. NO. CERL-TR-M-166

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Floor coverings, \*Concrete,  
\*Bonding, \*Explosives, Temperature, Failure,  
Adhesive bonding

IDENTIFIERS: \*Conductive flooring, Coefficient of  
expansion, \*Temperature cycling (U)

(U)

IAC ACCESSION NUMBER: PL-024222

IAC DOCUMENT TYPE: PLASTIC -HARD COPY--

This report presents the findings of tests performed to determine the effects of temperature cycling on selected conductive flooring materials bonded to concrete slab substrates. Four specimens of each of two conductive flooring materials--Coroline 510 and Ceilcrete 2500B, both products of the Ceilcrete Company--were conditioned to temperatures of -10F (-23.3 C) and 76.4 F (24.7 C). Measurements were made to determine the coefficient of expansion of each of the flooring materials and of the concrete to which they were bonded. The results of the tests indicate that the Coroline 510 is satisfactorily bonded to the concrete within the temperature range indicated, while Ceilcrete 2500B is likely to become unbonded under the same conditions. (Author)

(U)

IAC SUBJECT TERMS: P--(U)Explosive loading-Conductive  
flooring, Bond failure-Adhesives, Temperature  
effects--Coefficient of expansion, Concrete-Floor  
coatings, ZZ Unlimited.;

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099052

AD-A028 922 20/1 5/3 14/1

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLCost Effectiveness of Alternative Noise  
Reduction Methods for Construction of Family  
Housing. (U)

DESCRIPTIVE NOTE: Interim rept.,  
JUL 76 92P Schomer, P. D.; Kessler, F.  
M.; Chanaud, R. C.; Homans, B. L.; McBryan,  
J. C.;

REPT. NO. CERL-IR-N-3  
PROJ: DA-4-A-762720-A-806  
TASK: 4-A-762720-A-89602

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Noise reduction, \*Housing projects,  
\*Construction, \*Cost effectiveness, Residential  
section, Sound transmission, Construction equipment,  
Noise pollution, Military engineering, Texas,  
Charts, Graphs (U)  
IDENTIFIERS: Family housing, Noise level, Fort  
Hood(Texas) (U)

The objective of this work was to obtain the cost/  
benefit relationships associated with new, quieter  
construction equipment and/or construction process  
modification. A workable cost/benefit model was  
developed for this purpose, but a significantly  
larger data base must be acquired to apply this  
model. This initial work effort concentrated on one  
type of construction-multifamily housing  
construction. Significant findings included:  
(1) Construction site boundary noise can be  
significantly reduced by a number of currently  
available techniques; (2) the use of two quieter  
machines of lower capacity in lieu of one standard  
machine not only costs more but is of questionable  
noise control value, since the total noise exposure  
is sometimes greater from two machines than from one  
larger machine; (3) cost/benefit relationships  
for estimating purposes can be provided only after a  
significantly larger data base is obtained.  
(Author) (U)

AD-A028 922

UNCLASSIFIED

PAGE

161

AD-A028 921

UNCLASSIFIED

099062

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A028 921 20/1

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILL

Noise in Dishwashing Rooms. (U)

DESCRIPTIVE NOTE: Final rept.,  
AUG 76 110P McBryan, J. C.; Schomer,  
P. D.;

REPT. NO. CERL-TR-N-6

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Noise reduction, \*Dining halls,  
Military facilities, Standards, Blowers,  
Cleaning, Heaters, Protective equipment,  
Hearing, Baffles (U)  
IDENTIFIERS: Noise level, Dishwashing rooms,  
Dishwashers (U)

Noise levels in dishwashing rooms have been a  
continuing problem in Army dining facilities.  
This study has measured, recorded, and analyzed  
noise levels at Army and civilian facilities of  
various sizes. Study results show that noise levels  
increase with number of personnel served and that  
levels are above the minimum required for instituting  
a hearing conservation program under Army  
regulations. Heater/blowers and clanking dishes  
were found to be the major noise sources. Absorbing  
baffles and administrative controls are the two  
primary means presented to reduce the noise exposure.  
(Author) (U)



UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A028 605 14/5 9/2 13/5

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN ILL

Investigation of Automated Evaluation of Field Weld Radiographs.

(U)

DESCRIPTIVE NOTE: Final rept.,

JUL 76 19P Kearney, F. ; Fornango, J. ;

REPT. NO. CERL-TR-W-185

PROJ: DA-4-A-762719-AT-41

TASK: 4-A-762719-AT-4104

UNCLASSIFIED REPORT

DESCRIPTORS: \*Welds, \*Radiography, \*Automation, \*Image processing, Images, Electronic scanners, Defects(Materials), Detection, Computers, State of the art

IDENTIFIERS: Image analysis

(U)  
(U)

IAC ACCESSION NUMBER: NT-013330

IAC DOCUMENT TYPE: NTIAC -MICROFICHE--

Since evaluation of field welds using radiographs requires that an inspector compare the radiograph with a standard, subjectivity is introduced. An automated image-analyzing system is proposed to remove this subjectivity. Radiographs containing sharp, well-defined defects on a uniform background can be analyzed the cathode-ray scanners and special-purpose computers in real time. However, the visual contrast in field weld radiographs is rather poor, and many extraneous features are usually present. A scan of 80 standard radiographs using an image analyzer detected only 236 wild defects while human operators identified 988. Techniques for enhancement and filtering of extraneous features are essential to the automated analysis of field weld radiographs. It is recommended that further work on development of an automatic radiographic analyzer be deferred until major advancements occur in the state of the art of image analysis. (Author)

(U)

IAC SUBJECT TERMS: N--(U)\*RADIOGRAPHY, \*AUTOMATION, \*SCANNING, \*IMAGE ANALYSIS, WELDS, IMAGE PROCESSING, IMAGES, ELECTRONIC EQUIPMENT, DEFECTS(MATERIALS), DETECTION, COMPUTERS, STATE-OF-THE-ART REVIEWS;

AD-A028 605

UNCLASSIFIED

PAGE

162

AD-A028 387

UNCLASSIFIED

099062

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A028 387 15/5

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN ILL

A Site Selection Procedure for Military Family Housing.

(U)

DESCRIPTIVE NOTE: Special rept.,

JUL 76 112P Reynolds, R. ; Moore, A. ;

REPT. NO. CERL-SR-D-67

PROJ: DA-4-A-763734-DT-08

TASK: 4-A-763734-DT-0803

UNCLASSIFIED REPORT

DESCRIPTORS: \*Site selection, \*Housing(Dwellings), \*Military applications, Requirements, Cost estimates, Sanitary engineering, Public utilities

IDENTIFIERS: Military family housing

(U)  
(U)

The report presents a methodology for use by District or Base Facilities Engineering personnel in manually selecting the best alternative site for military family housing. The best possible site is determined by analyzing previous master planning activities, performing preliminary environmental evaluations, and comparing site development costs.

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UNCLASSIFIED

DOC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A028 386 13/3 11/9

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN

Fire, Flammability Test of Polyurethane  
Foams and Protective Coatings.

(U)

DESCRIPTIVE NOTE: Final rept.,  
JUL 76 63. Smith, Alvin;  
REPT. NO. CERL-TR-7-129  
PROJ: DA-4-A-162719-AT-33  
TASK: 4-A-162719-AT-3301

UNCLASSIFIED REPORT

DESCRIPTORS: \*Expanded plastic; \*Fire resistant  
coatings; \*Construction materials; \*Polyurethane  
resins; Test methods; Theater level operations;  
Performance (Engineering); Flammability  
IDENTIFIERS: Portland cement; \*Foamed in place  
construction

(U)

(U)

IAC ACCESSION NUMBER: PL-024331  
IAC DOCUMENT TYPE: PLASTIC - HARD COPY--

Foamed plastics offer a number of advantages in  
Theater of Operations (TO) construction.  
They can be shipped to a site in low-volume, high-  
density forms and converted to low-density, high-  
volume construction materials. The low-density  
forms thus made possess high strength and good  
stability and are typically excellent thermal  
insulators. They can be used either as primary  
structural materials (foam dries) or as secondary  
structural materials contributing to the rigidity and  
load-bearing capability of wood or metal framework  
(panelized buildings). The greatest drawback  
to use of foamed plastics is flammability; generally,  
such materials burn when subjected to fire, even with  
the best commercially available flame retardants  
incorporated. Protection of a structure (and its  
inhabitants) in which a foamed plastic has been  
used requires the development and evaluation of a  
protective coating to reduce flammability of the  
foamed plastic. The objective of this investigation  
was to develop a protective coating medium which will  
allow and encourage the use of foamed plastics in  
TO construction. Polyurethane foams were  
identified as the most probable candidates for TO  
construction; and because using available materials (U)

AD-A028 386

UNCLASSIFIED

PAGE

163

AD-A028 380

UNCLASSIFIED

099062

UNCLASSIFIED

DOC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A028 380 5/9 15/5

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN

Construction Scheduling of AFCS Facilities--  
Skill Report.

(U)

DESCRIPTIVE NOTE: Final rept.,  
JUL 76 29p Kim, Seung U.; Nelson,  
Robert R.;  
REPT. NO. CERL-TR-C-72  
PROJ: DA-4-A-763734-DT-34  
TASK: 4-A-763734-DT-3404

UNCLASSIFIED REPORT

DESCRIPTORS: \*Skills; \*Construction; \*Army  
planning; Military facilities; Manpower utilization;  
Jobs; Classification; Technicians; Ratings

(U)

(U)

This report presents a list of skills to be used in  
construction planning of Army facilities  
Components System (AFCS) facilities in the  
Theater of Operations (TO). The proposed skill  
list's categories include all the major construction  
skills that may have planning significance in AFCS  
TO construction projects. The list represents an  
upper limit on the ability of the user of AFCS data  
to break down labor requirements into more refined  
skill groupings. If necessary, it can be reduced to  
include fewer skills; this task is left to the  
planner having such a need.

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UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099052

AD-A027 644

13/8 14/2

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILL

Development of a Weld Quality Monitor.

(U)

DESCRIPTIVE NOTE: Interim rept.,  
JUL 76 28P Weber, R. ; Kearney, F. ;

Joshi, S. ;  
REPT. NO. CERL-IR-M-183  
PROJ: DA-4-A-762719-AT-41  
TASK: 4-A-762719-AT-4104

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: Report on Nondestructive Testing  
for Field Welds.

DESCRIPTORS: \*Monitors, \*Nondestructive testing,  
\*Welding, Welds, Quality control, Gas metal arc  
welding, Monitoring, Real time

(U)

IAC ACCESSION NUMBER: NT-014520

IAC DOCUMENT TYPE: NTAC -MICROFICHE--

A weld monitoring system has been developed based  
on conditioning the primary signals from the welding  
machine and comparing them with preset limits. A  
light is activated when a welding parameter such as  
voltage, current, or heat input is outside the  
control limits. The circuitry has been tested with  
simulated primary signals. The voltage channel has  
also been tested using primary signals from an  
automatic gas metal-arc welding machine.

(U)

IAC SUBJECT TERMS: N--(U)DEVELOPMENT, WELDS, QUALITY,  
MONITORING, SYSTEMS, CONTROL, VOLTAGE, ELECTRIC CURRENTS,  
HEAT, ARC WELDS, AUTOMATION, MACHINES, WELDING, PARAMETERS:

AD-A027 644

UNCLASSIFIED

PAGE

164

AD-A027 585

UNCLASSIFIED

099062

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A027 585

15/5

5/2

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILL

Preparation and Review of DD Form 1391.

(U)

DESCRIPTIVE NOTE: Final rept.,  
JUN 76 44P Lev, David E. ; Stellinghorn,

William H. ;  
REPT. NO. CERL-IR-P-69  
PROJ: DA-4-A-762719-AT-41

UNCLASSIFIED REPORT

DESCRIPTORS: \*Forms(Paper), \*Construction,  
Preparation, Instructions, Military engineering,  
Computer programming, Computer applications  
IDENTIFIERS: Form 1391(DD)

(U)  
(U)

The Military Construction Project Data  
Sheet (DD Form 1391) is used to state  
requirements and justifications in support of funding  
requests for military construction projects. It is  
submitted for all projects requiring OSD approval,  
including major and minor new construction and  
certain projects involving Operations and  
Maintenance, restoration of damaged facilities, and  
nonappropriated fund construction. The purpose of  
this report is to formulate recommendations for  
computer-assisted processing of DD Form 1391 and  
to facilitate development of the recommended  
procedures. Preparation of the form by Army  
installations and its review by the Office of the  
Chief of Engineers (OCE) are described. The  
report also identifies the regulations, criteria, and  
data sources on which this process is based.

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A027 584 5/1 15/5 13/3

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN ILL

Construction Scheduling of AFCS Facilities Methodology Report.

(U)

DESCRIPTIVE NOTE: Final rept.,  
JUL 76 69P Kim, Seung J. ;  
REPT. NO. CERL-TR-C-71  
PROJ: DA-4-A-763734-DT-34  
TASK: 4-A-763734-DT-3404

UNCLASSIFIED REPORT

DESCRIPTORS: \*Construction, \*Scheduling, \*Military operations, Military engineering, Military facilities, Theater level operations, Field army, Data processing, Military planning, Battalion level organizations, Brigade level organizations, Military commanders

(U)

The report presents the results of the first phase of a research project to develop two scheduling programs: one for the Office of the Chief of Engineers (OCE) and the other for engineer units. The first phase of the study aims to establish procedural frameworks for the two programs. Several existing computer programs were analyzed to see if their scheduling features can be adapted to the proposed programs. Based on this analysis and guidance received from representatives of the Army Facilities Components System (AFCS) and the Army Engineer School, the study developed a procedural framework for the scheduling programs, specifically a Critical Path Method (CPM) based scheduling technique for the program to be used at OCE and a priority-based resource scheduling method for the one to be used by engineer battalions, groups, brigades, or commands.

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A027 431 13/2

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN ILL

Computer-Aided Environmental Impact Analysis for Air Force Base Realignment Activities: User Manual.

(U)

DESCRIPTIVE NOTE: Final rept.,  
JUN 76 77P Riggins, R. E. ; Jain, R. K. ;  
REPT. NO. CERL-TR-N-4

UNCLASSIFIED REPORT

DESCRIPTORS: \*Computer aided design, \*Airports, \*Environmental impact statements, Air Force facilities, Air Force planning, Computer applications, Military organizations, Manuals, Assessment, Environments  
IDENTIFIERS: Environmental impact computer systems, Environmental impact analysis, Assessment centers, Air Force bases

(U)

(U)

The federal governments has requested that its agencies incorporate environmental considerations into the planning of new projects and activities. Environmental impact assessments and statements (EIA/EIS) provide a basis for review and analysis of a proposed project's environmental consequences. The Environmental Impact Computer System (EICS), developed by the U.S. Army Construction Engineering Research Laboratory, helps planners efficiently identify primary and secondary impacts of their proposed projects or activities and suggests ways to mitigate these impacts. This manual is designed to help Air Force personnel prepare EIAs and EISs using the EICS. Detailed instructions for accessing the mission change functional area of EICS are included as is an input form necessary for obtaining EICS output. The manual discusses in detail procedures necessary for using EICS output for environmental impact assessment and outlines the steps for preparing a proper and complete EIA/EIS.

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UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099082

AD-A027 386

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CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILL

Material Handling Equipment Selection Guide  
for Commissary Warehouses.

(U)

DESCRIPTIVE NOTE: Final technical rept.,  
MAY 76 27P DeCandy, John R. ; Brown,  
Gerald J. ; Rood, Omar E. , Jr;  
REPT. NO. CERL-TR-P-68

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: See also report dated Jun 76, AD-  
A027 385.

DESCRIPTORS: \*Military facilities, \*Warehouses,  
\*Materials handling equipment, Storage racks,  
Pallets, Logistics, Downtime, Cost analysis,  
Maintenance

(U)

IDENTIFIERS: Space utilization, \*Commissaries

(U)

This report is a condensation of Material Handling Equipment for Commissary Warehouses (CERL Technical Report P-67) and is to be used in selecting efficient and economical Material Handling Equipment (MHE). This selection guide is based on a series of monographs developed in accordance with basic assumptions about a 'typical' warehouse operation. A step-by-step procedure, which includes an example selection problem, guides the commissary officer in choosing MHE by using information obtained from his own operation. The commissary officer may determine estimates of such basic information as the volume of goods moved through the warehouse; receiving/stocking and picking standards in minutes per carton; MHE requirements; manpower requirements; MHE feasibility; MHE ownership and operating cost; and total cost of the MHE operations. The final equipment choice for a specific warehouse will depend solely on its intended application.

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AD-A027 386

UNCLASSIFIED

PAGE

166

AD-A027 385

UNCLASSIFIED

099062

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A027 385

15/5

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILL

Material Handling Equipment for Commissary  
Warehouses.

(U)

DESCRIPTIVE NOTE: Final rept.,  
JUN 76 55P Brown, Gerald J. ; DeCandy,  
John R. ; Rood, Omar E. , Jr;  
REPT. NO. CERL-TR-P-67

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: See also report dated May 76, AD-  
A027 386.

DESCRIPTORS: \*Military facilities, \*Warehouses,  
\*Materials handling equipment, Storage racks,  
Pallets, Logistics, Downtime, Cost analysis,  
Maintenance

(U)

IDENTIFIERS: Space utilization, \*Commissaries

(U)

This report presents the findings of a material handling equipment (MHE) study performed to develop guidelines for efficient MHE selection in commissary warehouses. The significant factors in MHE selection are storage volume utilization, manpower requirements, purchase cost, operating cost, flexibility, and maintainability. A relative measure of performance under each factor is developed to determine feasibility and economy of equipment alternatives. Guidelines for equipment selection are provided and explained via an example of a standard warehouse configuration. Final choice of equipment for a specific warehouse depends solely on the application for which it will be used.

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099052

AD-A027 384 13/13 15/5

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLSeismic Design Methods for Military  
Facilities -- Preliminary Recommendations. (U)

DESCRIPTIVE NOTE: Interim rept.,  
JUN 76 80P Stockdale, William K. ;  
REPT. NO. CERL-IR-M-184  
PROJ: DA-4-A-76719-AT-05  
TASK: 4-A-76719-AT-0502

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Military facilities, \*Earthquake  
resistant structures, Earthquake engineering,  
Dynamic response, Seismic waves, Degrees of  
freedom, Damping, Structural response, Ground  
motion

This report presents preliminary recommendations  
for the methods of structural analysis to be used in  
the design of critical facilities on military  
installations. The recommended dynamic analysis  
methods are described and discussed, and examples are  
presented which illustrate the elastic and inelastic  
response spectra methods. It is recommended that  
dynamic methods be used in all areas where the  
expected ground acceleration exceeds 0.10 g. (U)

AD-A027 384

UNCLASSIFIED

PAGE

167

AD-A027 383

UNCLASSIFIED

099062

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A027 383 13/3 11/6

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLReview of the weldability of Construction  
Materials. (U)

DESCRIPTIVE NOTE: Interim rept.,  
JUN 76 27P Weber, R. A. ; Jackson, C.  
E. ;  
REPT. NO. CERL-IR-M-168  
PROJ: DA-4-A-162121-A-897  
TASK: 4-A-162121-A-89702

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Structural steel, \*Weldability,  
Construction materials, State of the art (U)

IAC ACCESSION NUMBER: NT-014518  
IAC DOCUMENT TYPE: NTIAC-MICROFICHE--  
The report reviews the concept of weldability of  
construction materials. Metallurgical and  
mechanical properties influenced by welding are  
discussed, as are the effects of welding variables  
such as heat input, nugget area, and cooling rate.  
An experimental procedure is proposed to document  
significant welding parameter ranges. The results  
of the experimental procedure will provide a data  
base for other research on the nondestructive testing  
of field welds. (U)

IAC SUBJECT TERMS: N--(U)WELDS, WELDING, CONSTRUCTION,  
MATERIALS, MECHANICAL PROPERTIES, METALLURGY, HEAT,  
COOLING, EXPERIMENTAL DATA, PROCEDURES, DATA, RESEARCH,  
REVIEWS:

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A027 382 15/5

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILL

Erection Procedures for Prefabricated  
Expandable Foam/Wood Structures.

DESCRIPTIVE NOTE: Final rept.,  
JUN 76 36P Trent, R. L.; Whiteside, T.  
M.; Roberts, J.;  
REPT. NO. CERL-IR-C-52  
PROJ: DA-4-A-763734-DT-34  
TASK: 4-A-763734-DT-3404

UNCLASSIFIED REPORT

RECAPITULATES: \*Military facilities. \*Expandable  
structures. \*Modular construction. Army equipment,  
Prefabricated buildings, Composite materials,  
Wood, Expanded plastics. Forward areas

(U)

IAC ACCESSION NUMBER: PL-024866  
IAC DOCUMENT TYPE: PLASTIC -MICROFICHE--  
This report, the fourth in a series covering  
development of multi-purpose structural components,  
presents the field-verified erection procedure for a  
modular foam/wood building system developed for use  
in the theater of operations (TO). The system is  
based on multiple use of modular panels for the  
floor, wall, and roof, structurally supported by  
foundation bents and roof trusses. The erection  
procedures are detailed for use by the Corps of  
Engineers troops and Project Officer assigned  
to field test the system at a U.S. Army  
Training and Doctrine Command (TRADOC)  
installation. Actual fabrication of the panels,  
including the foaming operation, is not included in  
this report.

IAC SUBJECT TERMS: P--(U)Modular panels-Building  
construction, Modular panels-Roofing, Erection  
methods-Modular panels, Construction-Prefabricated  
structures, Expanded plastics-Prefabricated panels,  
Urethane/wood-Wall panels, Foam/wood-Floor panels,  
Erection-Prefabricated structures, ZZ Unlimited.;

AD-A027 382

UNCLASSIFIED

PAGE

168

AD-A027 139

UNCLASSIFIED

099062

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A027 139 5/1 5/2

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILL

The Economic Impact Forecast System:  
Description and User Instructions.

(U)

DESCRIPTIVE NOTE: Final rept.,  
JUN 76 37P Webster, R. D.; Mitchell, R.  
A.; Welsh, R. L.; Shannon, Ewa; Anderson, M.  
L.;  
REPT. NO. CERL-TR-N-2  
PROJ: DA-4-A-762720-A-896  
TASK: 4-A-762720-A-89601

UNCLASSIFIED REPORT

DESCRIPTORS: \*Environmental impact statements,  
\*Information systems, \*Army planning, Army Corps  
of Engineers, Economic analysis, Forecasting,  
Cost analysis, Housing(Dwellings),  
Construction, Military facilities, Military  
engineering, Systems approach, Sociology,  
Department of Defense, Army training,  
Law(Jurisprudence), Missions, Management  
planning and control

(U)

IDENTIFIERS: \*Environmental technical information  
system, EITS(Environmental technical information  
system)

(U)

The Economic Impact Forecast System  
(EIFS) uses information from the Department of  
Commerce (Bureau of Census and Bureau of  
Economic Analysis); Department of Defense;  
and Department of Health, Education, and  
Welfare to calculate for DoD projects or  
actions the economic impacts caused by military  
activities. Using export-based location quotient  
techniques as the basis of its predictions, EIFS  
estimates the impact that expenditure of federal  
dollars has on local businesses, households, and  
governments in the areas of employment, personal  
income, total business volume, housing revenues,  
housing and business investments, and government  
expenses. The system currently has four operational  
functional areas: construction, operations and  
maintenance, mission change, and training. As  
development continues, the prediction equations will  
be redefined and additional functional areas will be

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A026 588

13/1

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILL

Interim Feasibility Assessment Method for  
Solar Heating and Cooling of Army  
Buildings.

(U)

DESCRIPTIVE NOTE: Final rept.,

MAY 76 51P Hittle,Doug ;Holshouser,D. ;

Walton,G. ;

REPT. NO. CERL-TR-E-91

PROJ: RDT/E-4-A-763734-DT-08

TASK: RDT/E-4-A-763734-DT-0806

UNCLASSIFIED REPORT

DESCRIPTORS: \*Solar heating, \*Solar energy,

\*Cooling, Buildings, Military facilities,  
Weather, Computerized simulation, Time dependence,  
Feasibility studies, Solar collectors, Life cycle  
costs

IDENTIFIERS: \*Solar cooling

(U)  
(U)

This report discusses design considerations for heating and cooling buildings with solar energy. General criteria are provided for selecting the components and configuration of such a system. The report presents parametric computer simulation studies for two buildings of typical construction at five locations in the United States. Hourly building heating and cooling loads were computed for each building at each site using the National Bureau of Standards Load Determining Program (NBSLD) and hourly weather data. Using these loads, hourly simulation studies were performed to determine the effects of collector type, collector area, collector tilt angle, thermal energy storage tank volume, and heat exchanger effectiveness on simulated solar heating and cooling system performance. The results of more than 200 one-year solar system simulations are presented. In addition, a dimensionless graph and methodology are provided which can be used to estimate solar heating and cooling system performance for buildings and sites other than those studied. The report provides an explanation and an example of an approach for determining the life cycle cost of a solar-equipped building as compared to a conventional installation. (U)

AD-A026 588

UNCLASSIFIED

PAGE

169

AD-A026 173

UNCLASSIFIED

099062

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A026 173

13/2

13/6

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILL

Vehicle Washing Operations and Wastewater  
Discharge, Fort Drum, NY - Findings and  
Recommendations.

(U)

DESCRIPTIVE NOTE: Final rept.,

JUN 76 51P Fileccia,R. J. ;Benson,L.

J. ;Conley,K. A. ;Matherly,J. E. ;

REPT. NO. CERL-TR-E-80

PROJ: DA-4-A-762720-A-896

TASK: 4-A-762720-A-89603

UNCLASSIFIED REPORT

DESCRIPTORS: \*Waste water, \*Vehicles, Cleaning,

Sanitary engineering, Army equipment, Water  
pollution abatement, Discharge, Drainage, Cost  
estimates, Army training

(U)

Army vehicle washing operations, washing facilities, and the wastewater discharges resulting from these activities were surveyed at Fort Drum, NY. On the basis of survey data and information supplied by post personnel, a concept design and cost estimates were prepared for a new consolidated washrack facility to replace existing on-post facilities. The recommended design incorporates hand-held, high-pressure/low-volume wash hoses for tracked vehicles and fixed-nozzle drive-through facilities for wheeled tactical equipment. The centralized wastewater treatment system proposed for the facility consists of a sedimentation basin equipped for mechanical free oil removal followed by filtration through a polishing filter. (Author)

(U)



UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A026 043 9/3

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILL

RFI Shielding Effectiveness of Steel Sheets  
with Partly Welded Seams, (U)

76 15P Honig, Ernest M., Jr;

UNCLASSIFIED REPORT

DESCRIPTORS: \*Welded joints, \*Electromagnetic  
shielding, Defects (Materials), Cracks,  
Resonant frequency, Antennas, Guided missile  
silos

Current specifications, largely unsupported by  
experimental data, require weld seams in  
electromagnetically shielded facilities to be  
radiographically defect-free. These specifications  
have necessitated spending \$1,000,000 for  
inspection and weld rework at SAFEGUARD missile  
sites. In a study of the effect of weld defects on  
the shielding effectiveness of shielded enclosures  
containing welded seams, Carlson found that weld  
seams having weld defects under a critical size could  
provide adequate shielding effectiveness, and that  
repair of such seams was an unnecessary expense. He  
suggested that the effect of crack (or slot)  
width and length on shielding effectiveness be  
evaluated in a future study that would determine  
critical sizes for classes of defects and would  
investigate circumstances in which a flaw might act  
as resonant antenna. (Author) (U)

AD-A026 043

UNCLASSIFIED

PAGE

170

AD-A026 041

UNCLASSIFIED

099062

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A026 041 13/1

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILL

Method for Estimating Solar Heating and  
Cooling System Performance, (U)

76 14P Hittle, Douglas C.; Walton,  
George N.; Holshouser, Donald F.;

UNCLASSIFIED REPORT

DESCRIPTORS: \*Solar heating, \*Solar energy, \*Air  
conditioning equipment, Buildings, Geographical  
distribution, Solar radiation, Computerized  
simulation, Climate (U)

During FY75 the Construction Engineering  
Research Laboratory, under funding from the  
Office of the Chief of Engineers, engaged in a  
research effort to develop a method for the  
preliminary determination of the feasibility of  
heating and cooling buildings with solar energy.  
The principle objective of the work effort was to  
provide a simple means for estimating the expected  
performance of a given solar heating and cooling  
system when applied to typical buildings in various  
regions of the Country. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A025 317 13/3 5/1

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN ILL

Proceedings of the CIB W-65 Symposium on Organization and Management of Construction, 19-20 May 76, U.S. National Academy of Sciences, Washington, D. C.

MAY 76 765P

UNCLASSIFIED REPORT

DESCRIPTORS: \*Construction, \*Management, Symposia, Algorithms, Optimization, Decision making, Assessment, Cost analysis, Computer applications, Management information systems, Construction materials, Productivity, Models, Risk analysis, India, Australia, Economics, User needs, Structural analysis

The 51 papers presented in these proceedings describe three facets of the organization and management of construction: (1) the organization of construction, (2) an evaluation of organizational forms, and (3) management methods in construction. (Author)

(U)

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UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A025 209 13/13 11/2 19/4

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN ILL

Ballistics Tests of Fibrous Concrete Dome and Plate Specimens.

DESCRIPTIVE NOTE: Final rept.,

APR 76 45P Naus, D. J.; Williamson, G.

R. ;

REPT. NO. CERL-TR-M-179

PROJ: DA-4-A-162719-AT-33

TASK: 4-A-162719-AT-3301

UNCLASSIFIED REPORT

DESCRIPTORS: \*Domes (Structural forms), \*Concrete, \*Structural analysis, Weapons effects, Ballistic testing, Plates, Weapon systems, Fiber reinforcement, Steel, Small arms, Mortars, Terminal ballistics, Resistance, Inflatable structures

(U)

Fibrous concrete plate and inflation-formed dome specimens were fabricated in the laboratory and tested to evaluate their resistance to ballistics. Variables in the investigation included: weapon system (small arms, mortars, grenades, and explosives); range (0 to 200 yds); fiber volume content (0 to 3 percent); thickness (1 to 8 in.); type of fiber reinforcement (mild steel, drawn steel, and fiberglass); and angle of incidence (0 to 75 degrees). Test results indicated the following: (1) the inflation-formed domes provide adequate protection from mortars and grenades detonated at ranges of 5 ft or more; (2) the specimens reinforced with fiber are far superior to those without fibers; (3) material systems of the thickness considered do not provide effective protection against demolition charges such as Composition C4; (4) resistance to penetration increases with decreased angles of impact and increased range; and (5) the specimens reinforced with the more ductile steel fibers perform slightly better than those with glass fibers. (Author)

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AD-A025 317

UNCLASSIFIED

PAGE

171

AD-A025 209

UNCLASSIFIED

099062

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A025 203 11/6

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLInitial Studies of In-Sem Fracture Using  
a Tensile Stage.

(U)

DESCRIPTIVE NOTE: Final rept.,

MAY 76 34P Aleszka, James ;

REPT. NO. CERL-TR-M-181

PROJ: DA-4-A-761102-AT-23

TASK: 4-A-761102-AT-2302

UNCLASSIFIED REPORT

DESCRIPTORS: \*Steel, \*Fracture(Mechanics),

Tensile properties, Iron alloys, Plastic

deformation, Electron microscopy, Crack propagation, (U)

Plates, Scanning, Strain(Mechanics)

IDENTIFIERS: HY-130 steel, A-36 steel, AX-110 (U)

welds, Scanning electron microscopy

IAC ACCESSION NUMBER: MCIC-000586

IAC DOCUMENT TYPE: MCIC -HARD COPY--

Using a uniquely designed base, tensile tests were

performed on A-36 and HY-130 steel plate

specimens and a defective AX-110 weld deposit under

vacuum inside a scanning electron microscope.

Although the base is also designed to handle

compression and bending tests, this initial

investigation was confined to tensile loading.

Results to date show that considerable plastic

deformation occurs within the grains of the A-36

and HY-130 specimens prior to failure. Stringers

of inclusions were found to serve as principal sites

for crack initiation and void formation. The

tensile stage was found to be successful in

monitoring crack growth in specimens. (Author)

(U)

IAC SUBJECT TERMS:

W--(U)ENGINEERING STEEL, HY-130,

PLATE, SEM, PLASTIC DEFORMATION, GRAIN STRUCTURE, FAILURE,

LOADING, CRACK PROPAGATION, VOIDS, WELDS, ULTIMATE TENSILE

STRENGTH, TENSILE YIELD STRENGTH, ELONGATION, FRACTURE,

FRACTURE SURFACE.:

AD-A025 203

UNCLASSIFIED

PAGE

172

AD-A024 938

UNCLASSIFIED

099062

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A024 938 5/2

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLDevelopment of the Military Construction Data  
System (MCDS). Part II.

(U)

DESCRIPTIVE NOTE: Interim rept.,

APR 76 42P Stelhorn, William M. ;Chung,

Kin-Man ;Wong, William ;

REPT. NO. CERL-IR-P-66

PROJ: DA-4-A-762719-AT-01

TASK: 4-A-762719-AT-0101

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: See also Part I, AD-A000  
710.

DESCRIPTORS: \*Information systems, \*Construction,

Engineering, Military facilities, Costs, Life

cycles, Maintenance, Medical equipment, Integrated

systems, Reliability, Compatibility, Computer

programming, Data management, Data bases

IDENTIFIERS: MCDS(Military Construction Data

System), Military construction data system,

System 2000

(U)

(U)

Three major activities in the on-going development of the Military Construction Data System are described. A revised structure for the data dictionary/directory is presented and the function of its various components explained. An experiment is described in which the contents of two data files maintained under the SYSTEM 2000 data base management software are transferred to a RAMIS installation. Finally a test interface between the MCDS data base and an independent application program is discussed. Recommendations for near-term development include the maintenance of selected 'live' data files and provision of retrieval services for users. (Author)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A024 910 13/3 13/13

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN ILL

An Analytical Model for Uniaxial Cyclic Inelastic Behavior of Reinforced Concrete. (U)

DESCRIPTIVE NOTE: Final rept.,  
MAY 76 25P Sharma, Sushil K. ;  
Bhattacharyya, Rabi K. ;  
REPT. NO. CERL-TR-M-180  
PROJ: RDT/E-4-A-161102-AT-23  
TASK: 4-A-161102-AT-2302

UNCLASSIFIED REPORT

DESCRIPTORS: \*Reinforced concrete, Strain(Mechanics), Cyclic tests, Deformation, Mathematical models, Stresses, Loads(Forces), Experimental data, Reinforcing materials, Steel, Earthquake resistant structures, Safety, Earthquake engineering  
IDENTIFIERS: Design (U)  
(U)

The report presents an analytical model for uniaxial cyclic inelastic behavior of reinforced concrete. The model was synthesized from the analytical models for plain concrete and reinforcing steel. The parameters of the models were derived from extensive experimental data taken from the literature. Cyclic experimental tests on plain concrete and steel involving large inelastic strains were simulated by the plain concrete and reinforcing steel models; the experimental and analytical results showed close agreement. (U)

AD-A024 910

UNCLASSIFIED

PAGE

173

AD-A024 786

UNCLASSIFIED

099062

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A024 786 10/2 15/3.1 21/5

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN ILL

The Feasibility of a Storable Propellant Turbine/High-Speed Alternator as a Compact Short-Life Power System for Hardened Ballistic Missile Defense (BMD) Installations. (U)

DESCRIPTIVE NOTE: Final rept.,  
APR 76 27P Moore, Nicholas R. ;  
REPT. NO. CERL-TR-E-90

UNCLASSIFIED REPORT

DESCRIPTORS: \*Hardened structures, \*Power supplies, \*Turbogenerators, \*Storable rocket propellants, Alternators, Liquid propellants, Gas generating systems, Antimissile defense systems  
IDENTIFIERS: \*Turbogenerators, AC generators (U)  
(U)

Power systems for use in Ballistic Missile Defense (BMD) installations must satisfy unusual requirements. The most significant of these are that the power system must not be adversely affected by strong pressure perturbations in the atmosphere, it must be small and lightweight since volume inside a BMD building is very expensive, and it must reliably fulfill the specified mission. Unfortunately, adaptation of conventional diesel and gas turbine power systems to meet these requirements is expensive. This report describes and technically evaluates a turboalternator power system which is uniquely suited for the BMD mission. This power system consists of an alternator driven by a small turbine which is powered by gaseous products from the decomposition of a single, stored liquid fuel. The system does not consume air from the atmosphere, nor does it require an external cooling system or heat sink. These characteristics give the turboalternator significant advantages which may lead to substantial cost savings over conventional diesel and gas turbine power systems when short operating times are required. (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A024 751 15/5 13/2

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN ILL

Disposal of Cleaning Debris. (U)

DESCRIPTIVE NOTE: Interim rept. Jul 74-Jun 75, APR 76 85P KLOSTER, S. E.; Mikucki, W. J. ;  
REPT. NO. CERL-IR-E-77

UNCLASSIFIED REPORT

DESCRIPTORS: \*Disposal, \*Debris, \*Waste disposal, Cleaning, Burning rate, Decomposition, Buried objects, Purchasing, Recycled materials, processing, Air pollution  
IDENTIFIERS: \*Disposal of cleaning debris, Cleaning debris, Unconfined burning, Confined burning, Burying refuse, Firewood, Mulch, Selling nonprocessed debris, Burying nonprocessed debris (U)

IAC ACCESSION NUMBER: PL-900778

IAC DOCUMENT TYPE: PLASTIC -MICROFICHE--  
Most project managers at Corps of Engineers (COE) impoundments dispose of cleaning debris by unconfined burning. However, environmental legislation and enforcement trends indicate that unconfined burning will soon be eliminated as a means to dispose of cleaning debris in many areas of the United States. There are several methods to dispose of cleaning debris. These alternatives include, but are not limited to: (1) placing the debris on the ground to decompose; (2) burying the debris with or without processing; (3) selling the debris without processing; (4) processing the debris for sale as firewood, mulch, etc.; (5) burning the debris by confined or unconfined burning techniques. Eight sites were visited to collect site-specific data on a list of factors deemed to be essential in evaluating the disposal methods. Four site visits are described in detail while the remaining four are summarized. The study determined that each site must be considered individually, using social, economic, and physical factors to determine the most appropriate debris disposal method for the location. There is no universal debris removal or disposal method that can (U)

AD-A024 751

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PAGE

174

AD-A024 381

UNCLASSIFIED

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A024 381 11/6 11/3 13/10 13/13

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN ILL

First Annual Inspection of Buzzards Bay Piling. (U)

DESCRIPTIVE NOTE: Interim rept., APR 76 32P Kumar, A. ; Hahin, C. ;  
REPT. NO. CERL-IR-M-172  
PROJ: CWIS-31204

UNCLASSIFIED REPORT

DESCRIPTORS: \*Pile structures, \*Protective coatings, \*Cathodic protection, \*Steel, Corrosion, Sea water, Fouling, Deterioration, Massachusetts  
IDENTIFIERS: Buzzards Bay (U)

This report presents the results of part of a study being conducted to determine the amount of coating deterioration on pilings in coastal areas. The 15-year study will consider the effects of sacrificial cathodic protection, temperature, and geography on coating deterioration in seawater. Results will be used to optimize coating selection. The first annual inspection of the pilings at Buzzards Bay, MA, was conducted from 24 to 28 July 1975. The inspection consisted of a visual evaluation of the piles and electrical measurements of the cathodic protection indices and corrosion potentials of the piles. The piles have developed slight biofouling in the tidal zone. Light guano covers the top 5 to 6 ft (1.5 to 1.8 m) of the pilings. Visual inspection of the piling areas above the water determined that all the piles had a rating of 10 according to ASTM G10-68 standards. Only one coating, system No. 12, suffered installation damage. All piles with sacrificial anodes showed adequate protecting potentials. (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A024 303 13:2

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILL

Environmental Impact Computer System  
Attribute Descriptor Package. Reference  
Document.

(U)

DESCRIPTIVE NOTE: Final rept.

APR 76 800P

REPT. NO. CERL-TR-E-85

PROJ: DA-4-A-1621-A-996

TASK: 4-A-1621-A-89601

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: See also AD-ANOR 000.

DESCRIPTORS: \*Environmental impact statements.

\*Environmental protection. \*Construction.

\*Military applications. Land use.

Noise(Sound). Handbooks. Pollution.

Wildlife. Computer applications. Data processing.

Methodology. Ecology. Health. Science. Air

pollution. Water pollution. Energy

IDENTIFIERS: Environmental impact computer system.

Attribute descriptor package

(U)

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IAC ACCESSION NUMBER: PL-900378

IAC DOCUMENT TYPE: PLASTIC -HARD COPY--

This report describes the objective, philosophy,

and use of the Environmental Attribute

Descriptor Package Reference Document to the

user of the Environmental Impact Computer

System (EICS). The report explains why

descriptor packages and paragraphs were developed,

how to use them, and how they will help the user

prepare Environmental Impact Assessments and

Environmental Impact Statements for their

projects and programs in a more economical and

efficient manner. The report contains background

information about EICS, describes the three

environmental attribute levels, and provides a copy

of all descriptor packages and paragraphs developed

to date, separated by technical specialty.

(U)

IAC SUBJECT TERMS: P--(U)Pollutants review--

Environmental effects, ZZ MTD. ZZ Unlimited.;

AD-A024 303

UNCLASSIFIED

PAGE

175

AD-A024 141

UNCLASSIFIED

099062

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A024 141 5/2 13/13

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILL

Access to the Military Construction Data  
System (MCDS): A User's Manual.

(U)

DESCRIPTIVE NOTE: Final rept.,

MAR 76 43P

REPT. NO. CERL-TR-P-65

PROJ: DA-4-A-762719-AT-01

TASK: 4-A-762719-AT-0101

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: See also report dated Sep 74, AD-  
A000 710.

DESCRIPTORS: \*Information retrieval, \*Construction.

\*Military engineering. Manuals. Data bases. User

needs. Computer programming. Words(Language).

Classification. Identification. Index terms.

Information systems

IDENTIFIERS: MCDS(Military Construction Data

System). Military construction data system.

Key words. Objectives. Retrieval commands

(U)

Procedures and examples are provided for accessing

the Military Construction Data System

(MCDS) Data Dictionary/Directory. Use of

the keyword indexes, and several predefined retrieval

commands is explained, and current lists of keywords

and data element definitions are included.

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099052

AD-A023 972 15/5

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLDecor Guide for Commissary Store  
Facilities.

(U)

DESCRIPTIVE NOTE: Final rept.,

DEC 75 123P Brittain, Richard Gray ;  
Porter, Robert L. ;  
REPT. NO. CERL-TR-D-58

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Military facilities, Planning,  
Engineering, Military personnel, Purchasing,  
Food, Clothing, Handbooks, Drawings, Pictures,  
Colors, Floors, Walls, Cost estimates  
IDENTIFIERS: Interior decorating,  
\*Commissaries

(U)

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The guide presents interior commissary store decor schemes to be used by commissary officers and facilities engineers when improving and modernizing Army commissary facilities. These decor schemes are intended to create a shopping atmosphere by using functional decor; that is, decor that improves the overall appearance of the commissary facility and makes shopping more efficient and satisfying. The decor schemes accomplish this by using color to create and emphasize the character of each department within the commissary store. The decor schemes tend to make the total store more understandable and facilitate identification of the departments, allowing customers to locate and select desired merchandise more quickly. By simplifying the shopping environment, the schemes allow the merchandise to be the focal point of the store. The designs focus on improvement of existing facilities, but the concepts and items listed are adaptable and can be used effectively to decorate new facilities.

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AD-A023 972

UNCLASSIFIED

PAGE

176

AD-A023 750

UNCLASSIFIED

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## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A023 750 13/13 14/1

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLIndustrialized Building Construction Time/  
Cost Model - First Quarter FY 76  
Results.

(U)

DESCRIPTIVE NOTE: Interim rept.,

APR 76 31P Poskus, K. K. ;  
REPT. NO. CERL-IR-D-66  
PROJ: DA-4-A-762719-ATA-1  
TASK: 4-A-762719-ATA-101

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Modular construction, \*Cost analysis,  
Prefabrication, Models, Construction, Time,  
Delivery, Questionnaires, Statistical analysis,  
Surveys, Housing projects, Prefabricated  
buildings  
IDENTIFIERS: Mobile homes, \*Industrialized  
building

(U)

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The time/cost project was developed as a means of comparing the cost and delivery time of industrialized building with that of conventional building to form a basis for selecting the best type of facility construction. A new cost-estimating procedure was needed to provide cost estimates for industrialized building without reference to drawings or specifications. This report describes the results of a July 1975 survey administered to a sample of industrialized builders of housing products. The survey was designed to find those variables which could predict differences in the cost and delivery time of housing products. The statistical summaries of the three major types of housing producers (panelized, modular, mobile) are presented, along with tests for the significance of differences in physical plant, production time, and employee characteristics. A followup questionnaire was sent to respondents to clarify confusion in the 'skilled' versus 'unskilled' classification of employees. Since the survey did not contain a sufficient diversity of material types of erection time data to yield the anticipated results, this report discusses the future direction for the project. (Author)

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CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN IL F/G 13/2  
USACERL REPORT BIBLIOGRAPHY.(U)

DEC 80

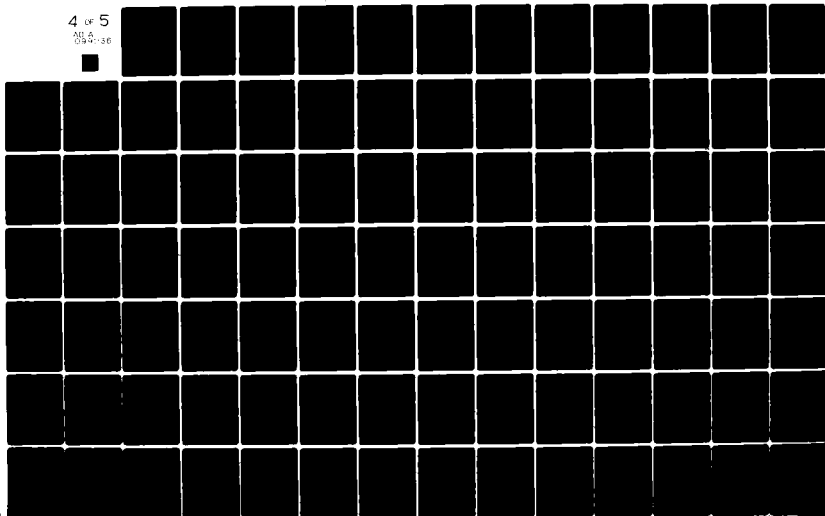
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4 of 5

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A023 596

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CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILL

Investigation of RF Coupling and Radiation  
Leakage Parameters of Some Typical Junction  
Box Circuitry Configurations.

(U)

DESCRIPTIVE NOTE: Final rept.,  
MAR 76 70P Adelman, J. ;Nielsen, P. ;  
McCormack, R. ;  
REPT. NO. CERL-TR-E-88

UNCLASSIFIED REPORT

DESCRIPTORS: \*Junction boxes; \*Electromagnetic  
interference, Leakage(Electrical),  
Coupling(Interaction), Electromagnetic  
compatibility, Transient radiation effects,  
Transmission lines, Electromagnetic pulses

(U)

The objective of the study, composed of two  
experiments, was to collect baseline data that could  
be used to determine the degree of electrical  
coupling between circuits and RF leakage of some  
common junction box configurations. These  
experiments assume an empirical approach for  
measuring RF coupling and leakage parameters due to  
the complex geometry of the junction box circuitry  
configuration. The report presents a method for  
measuring these distributed parameters in order to  
calculate the values of amplitude and phase coupling  
for this simplified case from the model. These  
values are compared to the experimental measurements  
for the model to verify the experimental procedure.  
The results of this theory are then extended to the  
more complex structure of the cabling configuration  
within the conduit and the junction box.

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AD-A023 596

UNCLASSIFIED

PAGE

177

AD-A023 244

UNCLASSIFIED

099062

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A023 244 10/1 10/2

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILL

Total Energy and Total Utility Systems for  
Conservation of Resources.

(U)

DESCRIPTIVE NOTE: Interim rept. Jul 73-Jun 74,  
MAR 76 33P Hittle, Douglas C. ;  
REPT. NO. CERL-IR-E-61  
PROJ: DA-4-A-76720-A-896  
TASK: 4-A-76720-A-89602

UNCLASSIFIED REPORT

DESCRIPTORS: \*Energy management, \*Waste management,  
Conservation, Resource management, Solid wastes,  
Liquid wastes, Heating, Cooling, Electric power  
production, Buildings, Military facilities,  
Electrical loads, Thermal utilization, Cost  
benefits, Data acquisition, Requirements,  
Feasibility studies, Assessment, Methodology  
IDENTIFIERS: \*Total energy systems

(U)  
(U)

IAC ACCESSION NUMBER: PL-900858

IAC DOCUMENT TYPE: PLASTIC -HARD COPY--

This report describes the problems encountered in  
the feasibility assessment and design of total  
energy/total utility systems, outlines the general  
framework of a computational model for solving these  
problems and describes the data required to validate  
such a model. (Author)

(U)

IAC SUBJECT TERMS: P--(U)Energy recovery, Design  
optimization, Residential applications, Buildings,  
Economics, Modeling, Computer programs, Heat  
recovery, Solid wastes, Municipal wastes,  
Incineration, Pyrolysis, Anaerobic digestion,  
Sludge, Military applications, ZZ NTDE, ZZ  
Unlimited.;

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A023 186

13/2 9/2

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILL

LIFE2 User's Manual.

(U)

DESCRIPTIVE NOTE: Final technical rept..

JAN 76 117P Lindow,E. S.;Marvin,E.

L.;McManus,P. F.;Brown,J. J.;Kuo,F.

REPT. NO. CERL-TR-C-59

PROJ: DA-4-A-763734-DT-08

TASK: 4-A-763734-DT-0801

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Pavements, \*Computer programs,  
\*Programming manuals, User needs, Computer aided  
design, Maintenance, Repair, Landing fields,  
Cost analysis, Roads, Computer files

IDENTIFIERS: LIFE2 computer program

This report describes a digital computer program that enables pavement designers and planners to analyze the consequences of available pavement design alternatives. The program includes analytical procedures for designing rigid and flexible pavements for airfields, roads, and streets. In addition, this program is capable of evaluating maintenance and repair strategies. The resulting combinations of design schemes and maintenance strategies are ranked by total cost over the design life of the pavement. The manual presents background information about the program's analytical methodology and provides detailed instructions for its operation and input preparation. (Author)

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A022 844

9/3 6/10

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILL

Fume Emissions from Coal-Tar Pitch.

(U)

DESCRIPTIVE NOTE: Technical manuscript,

JAN 76 109P Hittle,Douglas C.;Stukel,

James J.;

REPT. NO. CERL-technical-Ms-E-84

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Coal tar, \*Fumes, \*Occupational diseases, Roofs, Particle size, Spatial distribution, Concentration(Chemistry), Toxicity, Pitch(Material), Gas chromatography, Flow rate, Chemical composition, Time, Temperature, Chemical analysis, Air pollution, Mathematical models, Heat transfer, Physical properties, Chemical properties

(U)

This study was intended to characterize the chemical and physical nature of coal-tar fumes emitted from spreading applications of coal tar and to determine a first estimate of the emission factor for coal-tar fumes under conditions similar to those found in the field. Three separate experiments were performed. The first resulted in the determination of a coal-tar fume particle size distribution. The second experiment resulted in the identification of the primary compounds found in collected tar fumes and a determination of their relative concentration. The third resulted in an estimate of coal-tar fume emission rates under various air flow conditions. These results may permit determination of the potential hazards to workers health and air quality associated with coal-tar-pitch products. (Author)

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AD-A023 186

UNCLASSIFIED

PAGE

178

AD-A022 844

UNCLASSIFIED

099062

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062  
AD-A022 698 13/2 5/1 9/2

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILL

Computer-Aided Environmental Impact  
Analysis for Mission Change, Operations and  
Maintenance, and Training Activities: User  
Manual.

(U)

DESCRIPTIVE NOTE: Final rept.,  
FEB 76 103F Riggins, R. ; Novak, E. ;  
REPT. NO. CERL-TR-F-85  
PROJ: DA-4-A-1621-1-896  
TASK: 4-A-1621-A-85601

## UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: Report on Procedures for  
Evaluating Environmental Impacts of All Army  
Military Programs. See also report dated Mar 75,  
AD-A008 988.

DESCRIPTORS: \*Environmental protection, \*Army  
planning, \*Computer applications, \*Missions,  
Modification, Impact, Assessment, Manuals,  
Army operations, Maintenance, Army training,  
Data acquisition

IDENTIFIERS: \*Environmental impact statements,  
Environmental impact computer system

This manual (the second in a series) is  
designed to assist Army personnel in assessing  
EICS for three of the nine functional areas of  
Army activity: mission change, operations and  
maintenance, and training. The manual defines new  
terminology and provides a step-by-step outline for  
obtaining and using the system's output. Included  
in the instructions are designation of activity  
categories and activity descriptions for the three  
functional areas.

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AD-A022 698

UNCLASSIFIED

PAGE

179

AD-A022 697

UNCLASSIFIED

099062

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062  
AD-A022 697 13/3 7/4

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILL

Operations Guide - Water and Cement Content  
of Fresh Concrete.

(U)

DESCRIPTIVE NOTE: Final rept.,  
FEB 76 30P Howdysheil, P. A. ;  
REPT. NO. CERL-TR-W-177  
PROJ: DA-4-A-762719-AT-05  
TASK: 4-A-762719-AT-0503

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Concrete, \*Cements, \*Water,  
Moisture content, Chemical analysis, Measurement,  
Field tests, Test equipment,  
Strength (Mechanics), Mobile

(U)

This operations guide provides information needed  
to set up and operate the Kelly-Vail (K-V)  
system for determining water and cement content of  
fresh concrete. The guide describes the K-V  
system's capabilities, limitations, and accuracy; and  
details the required equipment, reagents, and  
procedures. A guide for analyzing test results and  
a description of two mobile field units are  
presented. The system's capability to estimate  
potential concrete strength is also discussed.

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## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A022 656 5/1 13/2 13/3

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLConstruction Cost Engineering and Computation  
State of the Art, 1973.

(U)

DESCRIPTIVE NOTE: Interim rept. Jul-Dec 72,  
DEC 73 131P Neely, Edgar S., Jr;  
REPT. NO. CERL-IR-P-10  
PROJ: DA-4-A-062103-A-891  
TASK: 4-A-062103-A-89106

## UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: Report on Improve Accuracy of  
Cost Estimate and Budget Data.

DESCRIPTORS: \*Construction, \*Cost estimates,  
Computer applications, Systems analysis, Planning,  
Engineering, Budgets, Operation,  
Maintenance

(U)

IDENTIFIERS: \*Cost engineering

(U)

The state of the art in computerized construction  
cost engineering systems is presented. The report  
includes the format selected to describe each system.  
Six of the 15 computer systems reviewed are  
concisely defined with sample data, input forms, and  
report forms shown for each system. A comparison  
of all the systems completes the report.

(U)

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A022 085 13/13 8/11

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLThree-Dimensional Seismic Structural  
Analysis of Letterman Hospital.

(U)

DESCRIPTIVE NOTE: Final rept.,  
JAN 76 51P Prendergast, J. D.; Chol, C.  
K.;  
REPT. NO. CERL-TR-M-175  
PROJ: DA-4-A-76719-AT-05  
TASK: 4-A-76719-AT-0502

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Earthquake resistant structures,  
\*Hospitals, \*Seismic waves, Dynamic response,  
Spectrum analysis, Structural response,  
California, Structural engineering, Load  
distribution, Computerized simulation, Three  
dimensional, Two dimensional, Structural analysis,  
Military facilities, Time dependence, Structural  
members, Roofs, Walls, Reinforced concrete,  
Torsion, Damage assessment, Structural properties,  
Shear stresses, Vibration, Moment of inertia,  
Directional, Earthquakes, Ground motion,  
Damping

(U)

IDENTIFIERS: Letterman general hospital, TABS  
computer program, \*Earthquake engineering

(U)

This report summarizes the results of a three-  
dimensional seismic analysis of the primary  
structural elements of Letterman Hospital,  
Presidio of San Francisco, performed using  
response spectrum modal analysis procedures. These  
results are compared with those of a two-dimensional  
analysis of the hospital performed by Agabian  
Associates (AA), El Segundo, CA, which used  
time history modal analysis procedures. Overall  
agreement between the two analyses was good  
considering: (1) The difference in analysis  
methods; (2) The numerous instances where  
engineering judgment was required to idealize the  
complex structure and compute the required structural  
properties; and (3) The assumptions inherent in  
the computer programs. Both analyses, as compared  
to the original seismic design forces, provide:  
(1) More realistic estimates of the dynamic

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AD-A022 656

UNCLASSIFIED

PAGE

180

AD-A022 085

UNCLASSIFIED

099062

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A021 774 13/2 13/3 13/13

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN ILL

Study of Articulated Concrete Revetment  
 Mattress: Test and Analysis - Results of  
 FY 1974 Program.

(U)

DESCRIPTIVE NOTE: Final technical rept.,

JAN 76 70P Keaney, F. ; Prendergast, J. ;  
 REPT. NO. CERL-TR-M-94

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Revetments, \*Concrete, \*Mats,  
 Structural analysis, Wire,  
 Reinforcement (Structures), Reinforced concrete,  
 Banks (Waterways), Water erosion, Mississippi  
 river

(U)

This report presents (1) results of field and  
 laboratory test measurements of the force levels in  
 an articulated concrete revetment mattress (mat)  
 during the placement process, and (2) a  
 structural analysis of the mat. The purpose of this  
 test and analysis program was to determine the  
 feasibility of redesigning the wire fabric used in  
 the mat. Study results show that a mattress with  
 two (rather than three) 4000-lb longitudinal  
 wires is structurally feasible. Further, it appears  
 that testing may confirm that a two-wire, 3000-lb  
 fabric would be adequate. (Author)

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## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A021 651 13/2 13/3 13/8 13/13

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN ILL

Bonding between Cement Hydrates and  
 Steel.

(U)

DESCRIPTIVE NOTE: Final rept.,

JAN 76 55P Schnitgrund, G. D. ; Scott,  
 J. K. ;

REPT. NO. CERL-Technical-Ms-M-176  
 PROJ: DA-4-A-162121-A-897

TASK: 4-A-162121-A-89702

## UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: Doctoral thesis.  
 DESCRIPTORS: \*Bonding, \*Cements, \*Steel, Tensile  
 strength, Hydrates, Calcium compounds, Silicates,  
 Aluminum compounds, Ferrites, Interfaces,  
 Electron microscopy  
 IDENTIFIERS: Portland cement

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(U)

The bonding mechanics of steel to portland cement  
 and its constituent compounds were studied by testing  
 composite steel/paste bars in flexure. The  
 interface was subsequently examined by scanning  
 electron microscopy. Type I portland cement,  
 tricalcium silicate, dicalcium silicate, and  
 tetracalcium aluminoferrite exhibited strong bonding  
 to low carbon steel; tricalcium aluminate  
 demonstrated no measurable bond strength. The  
 primary bonding mechanism between alite paste and  
 steel was found to be chemical in nature. No  
 significant influence of the surface roughness of the  
 steel on the tensile bond strength to alite paste  
 could be established. The weak link in the steel  
 paste bar was a high water content region  
 concentrated near the steel/paste interface.  
 (Author)

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AD-A021 774

UNCLASSIFIED

PAGE

181

AD-A021 651

UNCLASSIFIED

099062

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A021 388 5/9

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILL

Changes in the Cost and Availability of  
Construction Labor.

(U)

DESCRIPTIVE NOTE: Interim rept.,  
DEC 75 34P Poskus, Uldis R.; Magnini,  
Michael;  
REPT. NO. CERL-IR-P-55  
PROJ: DA-4-A-762719-AT-05  
TASK: 4-A-762719-AT-05-02

UNCLASSIFIED REPORT

DESCRIPTORS: \*Labor, \*Construction, \*Military  
requirements, Personnel, Forecasting, Technology,  
Manpower, Cost analysis, Salaries, Contracts  
IDENTIFIERS: Construction industry (U)  
(U)

This report presents the results of a study which  
used the technique of regression or correlation  
analysis to investigate the future of construction  
labor and changes in its cost and availability.  
Projections of total employees on contract  
construction payrolls and hourly wages of  
construction workers on contract construction  
payrolls are based on selected independent variables  
and regression equations. Trend projections to the  
year 2000 are included for the independent and  
dependent variables. The impact of changes on the  
Corps of Engineers is discussed and the Corps'  
reaction alternatives outlined. The construction  
labor situation as of February 1975 is evaluated as  
a basis for prediction. (U)

AD-A021 388

UNCLASSIFIED

PAGE

182

AD-A020 951

UNCLASSIFIED

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UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A020 951 13/3 15/5

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILL

Technological Forecast: Changes in  
Availability and Cost of Construction  
Materials for Military Construction.

(U)

DESCRIPTIVE NOTE: Interim rept.,  
DEC 75 20P Poskus, Uldis R.;  
REPT. NO. CERL-IR-P-56  
PROJ: DA-4-A-762719-AT-05  
TASK: 4-A-762719-AT-0502

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: See also report dated Dec 74, AD-  
A003 991.  
DESCRIPTORS: \*Construction, \*Military planning,  
\*Forecasting, Construction materials, Technology,  
Economic analysis, Cost analysis, Projection  
IDENTIFIERS: Economic changes, Materials  
availability (U)  
(U)

This report briefly analyzes the construction  
environment from 1 July 1974 to 30 December 1974  
for possible changes in construction material costs  
and availabilities. Based on trends and expert  
opinion from industry literature, these costs and  
availabilities are projected to 1980. The  
resulting information is used to formulate  
conclusions which indicate potential problems that  
must be considered in planning future military  
construction programs. (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A019 931 9/1 20/14 13/5

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN ILL

RFI Shielding Effectiveness of Steel Sheets with Partly Welded Seams.

(U)

DESCRIPTIVE NOTE: Final rept.,

NOV 75 28P Honig, E. M., Jr;

REPT. NO. CERL-TR-M-171

PROJ: DA-4-A-162118-A-880

TASK: 4-A-162118-A-88011

UNCLASSIFIED REPORT

DESCRIPTORS: \*Electromagnetic shielding, \*radiofrequency interference, \*Welds, Effectiveness, Steel, Sheets, Defects(Materials), Porosity, Cracks, Holes(Openings)

(U)

This report presents the results of an investigation to determine the effect of six forms of incomplete welds containing slots and holes on the shielding effectiveness of shielded enclosures. The test specimens were butted plates and slotted plates (with and without tacked backing strips), wide-slot plates, and drilled plates. The plates were subjected to radio frequency interference (RFI) radiation from nominally 10 kHz to 10 GHz in frequency. Shielding effectiveness as a function of flaw size was determined for each defect class. Three critical, or transition, flaw sizes were determined for the three minimum specified shielding levels for each class of defect. Since through-thickness slots and holes are limiting, or worst, cases of cracks and porosity respectively, the critical flaw size determine the sizes of the cracks and porosity in welds that are not cost-effective to repair. Results showed that weld seams having unwelded, but tightly butted, lengths up to 4 1/2 in. (11.43 cm) afford at least 60 dB shielding effectiveness at all test frequencies. Slots of finite width seriously compromise shielding by acting as resonant radiators. Backing strips tacked (without burn-through) over welded seams have minor effect on shielding effectiveness. Holes up to 0.3 in. (0.762 cm) can be tolerated at all test frequencies since at least 60 dB shielding

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AD-A019 931

UNCLASSIFIED

PAGE

183

AD-A019 930

UNCLASSIFIED

099062

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A019 930 13/5 11/6

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN ILL

Fracture Characteristics of Structural Steels and Weldments.

(U)

DESCRIPTIVE NOTE: Final rept.,

NOV 75 111P Aleszka, J.; Kim, Y. G.;

REPT. NO. CERL-TR-M-170

PROJ: DA-4-A-761102-AT-23

TASK: 4-A-761102-AT-2302

UNCLASSIFIED REPORT

DESCRIPTORS: \*Weldments, \*Structural steel, Fracture(Mechanics), Electron microscopes, Scanning, Tensile properties, Fatigue(Mechanics), Carbon steels, Hydrogen embrittlement, Impact tests, Impact strength, Defects(Materials)

(U)

IAC ACCESSION NUMBER: MCIC-095341  
IAC DOCUMENT TYPE: MCIC -HARD COPY--  
This report presents the findings of a scanning electron microscope study of the tensile, fatigue, and impact fracture characteristics of a carbon steel; two high-strength, low-alloy steels; and a high-strength steel weldment. Tension and fatigue specimens were tested in as-received, hydrogen-embrittled, and temper-embrittled conditions, while impact specimens were tested in the as-received condition only. The failure mode of embrittled and unembrittled weldments containing induced weld defects was also studied.  
IAC SUBJECT TERMS: M--(U)HY-130, A36, A517F, AX-110, ENGINEERING STEEL, WELDS, WELD DEFECTS, TEMPERING, QUENCHING, GAS METAL ARC WELDING, TEMPERATURE EFFECT, LOW TEMPERATURES, TEMPER EMBRITTLEMENT, HYDROGEN EMBRITTLEMENT, FATIGUE PROPERTIES, INTERGRANULAR FRACTURE, MICROSTRUCTURE, FRACTURE SURFACE, PLASTIC DEFORMATION, CHARPY IMPACT, SCANNING ELECTRON MICROSCOPY, FATIGUE-STRESS NO. OF CYCLES.:

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## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A019 929 5/11 15/5

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILLMonitoring of the Fort Knox Industrialized  
BQQ Project--Design and Construction  
Phases.

(U)

DESCRIPTIVE NOTE: Final rept.;

DEC 75 22P Hamilton, John G. ; Bryant,

Dale A. ; Carroll, Michael G. ;

REPT. NO. CERL-TR-D-65

PROJ: DA-4-A-762719-AT-02

TASK: 4-A-762719-AT-0201

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Housing(Dwellings), \*Construction,  
\*Army procurement, Army planning, Life cycles,  
Cost analysis, Contracts, Modular construction,  
Specifications, Military requirements, Military  
facilities, Concrete, Panels, Kitchens, Baths,  
Officer personnel, Kentucky, Methodology,  
Assessment, Monitoring  
IDENTIFIERS: Design, Aesthetics

(U)  
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This report presents results of the monitorship of  
the construction and design of a demonstration  
project of industrialized building applied to  
Department of the Army construction requirements.  
The project was a 250-man bachelor officers'  
quarters (BQQ) at Fort Knox, KY, constructed  
by FCE-Dillon, Akron, OH, using their system  
of precast concrete panels and three-dimensional  
kitchen/bath modules. The experiences in design and  
production, one-step procurement, construction, and  
contract administration at Fort Knox are  
analyzed, and the cost per man housed is compared for  
BQQs in the FY 73 MCA program. (Author)

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AD-A019 929

UNCLASSIFIED

PAGE

184

AD-A018 953

UNCLASSIFIED

099062

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A018 953 13/2

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILLDesign Guidelines for Recreational  
Roads.

(U)

DESCRIPTIVE NOTE: Final rept.;

NOV 75 93P McNamara, James ; Moore, Alan

; Baerwald, John ;

REPT. NO. CERL-TR-D-63

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Roads, \*Reservoirs, Configurations,  
Utilization, Recreation, Construction  
IDENTIFIERS: Design, \*Recreational roads

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The design guidelines are the result of a 2-yr  
study which included: A review of the state-of-  
the-art of recreational road design; development of  
geometric design controls including a functional  
classification scheme, representative design  
vehicles, and design speeds; proposed geometric  
design standards for alignment, sight distance, cross  
section elements, etc.; a discussion of roadway  
aesthetic design criteria; an examination of future  
recreational trends.

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## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A018 951 13/3 13/2

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILLEvaluation of Alternate Wire Fabric  
Materials for Articulated Concrete  
Mattresses.

(U)

DESCRIPTIVE NOTE: Final rept.,

NOV 75 38P Cox, Edward ;Hahin,  
Christopher ;Aleszka, James ;  
REPT. NO. CERL-TR-M-169

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Revetments, \*Screens(Woven materials), \*Reinforced concrete, Wire, Stainless steel, Carbon steels, Copper, Cladding, tensile strength, Corrosion resistance, Plastic coatings, Mississippi River

IDENTIFIERS: Ferrocement

The objective of this study is to evaluate candidate wire fabric materials as alternatives to Copperweld and AISI 301 stainless steel in articulated concrete revetment mattresses. This will increase the number of materials which can perform satisfactorily as wire fabric, increase the number of wire fabric suppliers, and reduce the cost. This report is limited to wire fabric materials used in articulated concrete mats placed in fresh water on the Mississippi River above New Orleans.

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## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A018 879 13/2 5/1

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILLInstallation Solid Waste Survey  
Guidelines.

(U)

DESCRIPTIVE NOTE: Final rept.,

OCT 75 69P Schanche, Gary W. ;Greep,  
Larry A. ;Donahue, Bernard ;  
REPT. NO. CERL-TR-E-75  
PROJ: DA-4-A-162121-A-896  
TASK: 4-A-162121-A-89601

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Waste management, \*Solid wastes, \*Waste disposal, Planning, Management engineering, Installation, Surveys, Sampling, Data acquisition, Composition(Property), Collecting methods, Manpower, Equipment

IDENTIFIERS: \*Solid waste disposal

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IAC ACCESSION NUMBER: PL-900259

IAC DOCUMENT TYPE: PLASTIC-MICROFICHE--

This report is one of a series on air pollution, water pollution, and solid waste survey guidelines. It is primarily for the use of installation planning, operating, and maintenance personnel.

Guidelines for development of a comprehensive solid waste management plan are presented. The report contains information on determination of legal constraints, characterization of specific waste sources, evaluation of current management programs, and establishment of survey requirements. Techniques for the determination of the physical composition of waste streams and the amounts of waste material are described, along with guidelines for developing sampling programs. (Author)

(U)

IAC SUBJECT TERMS: P--(U)Solid waste pollution-Manufacturing plants, Industrial pollution-Design guides, Municipal pollution-Solid waste sampling, Solid waste pollution-Techniques review, ZZ MTD, ZZ Unlimited.;

AD-A018 951

UNCLASSIFIED

PAGE

185

AD-A018 879

UNCLASSIFIED

099062

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A018 716 9/2 13/13

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILLUsers Manual for the Automated Military  
Construction Progress Reporting System  
(AMPRS).

(U)

DESCRIPTIVE NOTE: Final rept.,

NOV 75 173P Guilar, W. G.; Fitzpatrick,  
J. E.; Rood, E. A.; Skarseth, R.; LeBlanc,  
C. J.;

REPT. NO. CERL-TR-P-47

PROJ: RDT/E-4-A-762719-AT-01

TASK: 4-A-762719-AT-0102

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Programming manuals, \*Military  
engineering, \*Construction, Machine coding, Data  
bases, Data processing security, Maintenance,  
Errors

IDENTIFIERS: Updating

This users manual presents procedures for acquiring  
and coding updated information for the Automated  
Military Construction Progress Reporting  
System (AMPRS). It is aimed at operations  
personnel in engineering, construction, and real  
estate who perform the acquisition and coding  
functions. This manual is one of five providing  
information and instructions for AMPRS. The other  
four manuals are: Executive summary for the  
Conversion Instruction for the AMPRS, ADP  
Manual for the AMPRS, Reference Manual for  
the AMPRS, and Conversion Instructions for the  
AMPRS. (Author)

(U)

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A018 439 9/2 13/2

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILLConversion Instructions for the Automated  
Military Construction Progress Reporting  
System (AMPRS).

(U)

DESCRIPTIVE NOTE: Final rept.,

NOV 75 227P Guilar, W. G.; Fitzpatrick,  
J. E.; Rood, E. A.; Skarseth, R.; LeBlanc,  
C. J.;

REPT. NO. CERL-TR-P-51

PROJ: RDT/E-4-A-762719-AT-01

TASK: 4-A-762719-AT-0102

## UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: See also AD-A018 437 and AD-  
A018 438.DESCRIPTORS: \*Data management, \*Military  
engineering, \*Construction, \*Management information  
systems, \*Programming manuals, Computer operators,  
Conversion, Methodology, Data processing, Input  
output processing, Data bases, Files (Records),  
Maintenance, Computer programs, Flow charting,  
Programming languages, Digital computers,  
Automatic, Abstracts, Army planning, Instruction  
manuals, ReportsIDENTIFIERS: \*AMPRS system, Honeywell G437  
computers, Cobol

(U)

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The Automated Military Construction  
Progress Reporting System (AMPRS) is a  
standard Corps system. The process of installing  
this system at a district or division must follow a  
specific set of instructions to avoid errors and the  
time wasted in correcting them. This report  
provides explicit guidance for converting any  
military design and construction progress reporting  
system within the Corps of Engineers to the  
AMPRS. The report is useful only before and  
during the conversion process. The Users Manual  
for the AMPRS, the ADP Manual for the AMPRS,  
the Reference Manual for the AMPRS, and the  
Executive Summary for the AMPRS are companion  
manuals that provide information about AMPRS,  
following conversion. (Author)

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AD-A018 716

UNCLASSIFIED

PAGE 186

AD-A018 439

UNCLASSIFIED

099062

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A018 438

9/2

13/2

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILLReference Manual for the Automated Military  
Progress Reporting System (AMPRS).

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DESCRIPTIVE NOTE: Final rept.,

NOV 75 405P Poskus, Uldis R. ; Thurber,

Lee ;

REPT. NO. CERL-TR-P-49

PROJ: RDT/E-4-A-762719-AT-01

TASK: 4-A-762719-AT-0102

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: See also AD-A018 437 and AD-  
A018 439.

DESCRIPTORS: \*Data management, \*Military  
engineering, \*Construction, \*Management information  
systems, \*Programming manuals, Dictionaries, Data  
storage systems, Computer files, Computer programs,  
Data bases, Files(Records), Coding,  
Tables(Data), Input output processing,  
Conversion, Digital computers, Automatic,  
Programming languages, Army planning, Instruction  
manuals, Reports

IDENTIFIERS: \*AMPRS system, Updating

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This reference manual for the Automated  
Military Construction Progress Reporting  
System (AMPRS) contains the Dictionary of  
Data Elements, Code Tables, Data Element  
- Report Matrix, Output Report Analysis,  
Residency of AMPRS Data Elements, and  
Sequential Table of 'p' and 'C' prefixed  
numbers. This manual is designed to assist OCE  
Divisions and Districts responsible for military  
construction in operating AMPRS. This is one of  
five system manuals for the AMPRS. Others are:  
Executive Summary for the AMPRS, USERS  
Manual for the AMPRS, ADP Manual for the  
AMPRS, and Conversion Instructions for the  
AMPRS. (Author)

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## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A018 437

9/2

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ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILLADP Manual for the Automated Military  
Construction Progress Reporting System  
(AMPRS).

(U)

DESCRIPTIVE NOTE: Final rept.,

NOV 75 318P Guilar, W. G. ; Fitzpatrick,

J. E. ; Rood, E. A. ; Skarseth, R. ; LeBlanc,

C. J. ;

REPT. NO. CERL-TR-P-48

PROJ: RDT/E-4-A-762719-AT-01

TASK: 4-A-762719-AT-0102

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: See also AD-A018 438 and AD-  
A018 439.

DESCRIPTORS: \*Data management, \*Military  
engineering, \*Construction, \*Management information  
systems, \*Programming manuals, Data storage systems,  
Data bases, Data processing, Input output  
processing, Files(Records), Maintenance,  
Computer operators, Programming languages, Digital  
computers, Automatic, Flow charting, Subroutines,  
Army planning, Instruction manuals, Reports  
IDENTIFIERS: \*AMPRS system, Honeywell G437  
computers, Cobol

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This manual presents procedures for using the  
Automated Military Construction Progress  
Reporting System. The information is directed  
toward the operators in the Data Processing  
Center. More detailed user instructions for the  
project managers and for engineering, construction,  
and real estate personnel may be found in the  
companion manuals: Users Manual for the  
AMPRS, Reference Manual for the AMPRS,  
Executive Summary for the AMPRS, and  
Conversion Instructions for the AMPRS.  
(Author)

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AD-A018 438

UNCLASSIFIED

PAGE 187

AD-A018 437

UNCLASSIFIED

099062

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A018 217 13/12

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILLStructural Fire Protection/Prevention  
Consolidation Study for Fayetteville, NC  
Area.

(U)

DESCRIPTIVE NOTE: Final rept.,

NOV 75 28P Brown, David W. ;  
REPT. NO. CERL-TR-P-54  
PROJ: CERL-75-2

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Fire fighting, \*Fire protection,  
\*Fire prevention, \*Air force facilities, \*Military  
facilities, Army operations, Air force operations,  
Operations research, Requirements, Manpower  
utilization, Efficiency, Costs, Joint military  
activities

(U)

IDENTIFIERS: Font Bragg. Pope air force  
base

(U)

This study analyzed the structural firefighting  
requirements at Fort Bragg and Pope Air  
Force Base, located at Fayetteville, NC.  
The study requirements were (1) to evaluate  
present resources and requirements for structural  
fire protection and prevention, and (2) to  
determine if consolidation would result in  
substantial manpower or equipment reduction. Fire  
prevention/protection consolidation was to be  
evaluated both as an integral part of a joint  
facilities engineering consolidation organization and  
as a stand-alone consolidation organization. The  
results of the study indicate that because of the  
widespread locations of the Air Force and Army  
airfields and mission-essential facilities, both  
installations are manned at the minimum acceptable  
level of structural firefighting companies.  
Consolidation of the individual fire protection/  
prevention activities will not significantly reduce  
required equipment, manpower, or facilities. At  
most, anticipated annual savings of \$88,801, or 4.6  
percent, would result from the reduction of five  
supervisory positions after consolidation. However,  
these savings do not appear to warrant consolidation  
at this time, since command and reporting

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AD-A018 217

UNCLASSIFIED

PAGE

188

AD-A017 329

UNCLASSIFIED

099062

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A017 329 13/2

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILL

Pavement Inspection Reference Manual.

(U)

DESCRIPTIVE NOTE: Final rept.,

SEP 75 60P Shalin, Mahamed Y. ;Darter,  
Michael ; Rozanski, Francine M. ;  
REPT. NO. CERL-TIP-C-48  
PROJ: DA-4-K-078012-A00K-1  
TASK: 4-K-078012-A0K-104

## UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: See also report dated Mar 73, AD-  
758 447.

DESCRIPTORS: \*Pavements, \*Visual inspection,  
\*Manuals, Maintenance, Deterioration, Repair,  
Asphalt, Concrete, Damage assessment  
IDENTIFIERS: Severity levels

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IAC ACCESSION NUMBER: NT-012183

IAC DOCUMENT TYPE: NTIAC -MICROFICHE--

This report is designed as an aid for the  
individual performing pavement inspections as part of  
an overall pavement maintenance and repair system.  
The types of distress found in asphalt- and  
concrete-surfaced pavements are presented; severity  
levels for each distress type are established and  
illustrated. The severity levels were based on the  
effect of the distress on maintenance and repair  
needs and priorities, ride quality, safety, and  
structural integrity.

(U)

IAC SUBJECT TERMS: N--(U)\*PAVEMENTS, INSPECTION,  
MAINTENANCE, REPAIRS, CONCRETE, SAFETY, STRUCTURAL  
INTEGRITY, ASPHALT;

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A017 328 13/2 5/1

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILL

Development of an Installation Surfaced Area  
Maintenance and Repair Management System.

(U)

DESCRIPTIVE NOTE: Technical information pamphlet  
(Final).

SEP 75 92P Shahin, Mohamed Y. ;Darter,  
Michael I. ;Rozanski, Francine M. ;Stark,  
Robert M. ;

REPT. NO. CERL-TIP-C-49  
PROJ: DA-4-K-078012-AOK-1  
TASK: 4-K-078012-AOK-104

UNCLASSIFIED REPORT

DESCRIPTORS: \*Pavements. \*Repair, Maintenance,  
Systems engineering, Management engineering,  
Visual inspection, Records, Decision making,  
Planning, Adaptive systems, Cost effectiveness  
IDENTIFIERS: Unpaved roads

(U)

This pamphlet describes a newly developed pavement  
maintenance and repair management system designed to  
help maintenance personnel at an installation achieve  
the greatest benefit from funds expended.  
Procedures for the following six basic activities  
are detailed: dividing the pavement network into  
sections, inspecting pavement sections, recording  
pavement information, determining maintenance and  
repair needs, determining maintenance and repair  
priorities, and developing work plans. Although the  
system is designed for paved systems, it can be  
adapted for unpaved surfaces.

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AD-A017 328

UNCLASSIFIED

PAGE

189

AD-A017 045

UNCLASSIFIED

099062

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A017 045 13/13 8/13

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILL

Concept Development for Structures on  
Expansive Soils by the Pattern Language  
Design Methodology.

(U)

DESCRIPTIVE NOTE: Final rept.,

OCT 75 48P Prendergast, J. D. ;Stroman,  
W. R. ;Young, G. E. ;Hodge, J. W. ;  
REPT. NO. CERL-TR-M-151  
PROJ: DA-4-DW-78012-AOK-1  
TASK: 4-D-M-78012-AOK-102

UNCLASSIFIED REPORT

DESCRIPTORS: \*Buildings, Construction, Soil  
surveys, Site selection, Decision making, Soil  
tests, Foundations(Structures), Selection  
IDENTIFIERS: \*Soil structure interactions,  
\*Pattern language, Preliminary design,  
\*Expansive soils

(U)

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The purpose of this project is two-fold: (1)  
to assemble information and data useful during the  
preliminary design phase of structure built on  
expansive soil; and (2) to organize and structure  
the information into a framework (pattern  
language) to focus the designer's attention on the  
applicable design information and data at the proper  
point in the design process. Development of the  
pattern language for this purpose produced 15 basic  
relationships (patterns) specifically related to  
the solution of design problems associated with  
construction on expansive soils. The basic  
patterns were organized into a (logic diagram-  
type) cascade to provide designers with a system  
which displays the interconnection among the patterns  
and enables them to preserve a view of the entire  
design process. For use in the preliminary design  
of structure on expansive soils, the pattern language  
design method is very instructive. It can be used  
to appraise and educate designers about the problems  
associated with designing buildings in expansive  
soils areas.

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## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A017 040 13/13

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILLAn Analytical Model for Determining Energy  
Dissipation in Dynamically Loaded  
Structures.

(U)

DESCRIPTIVE NOTE: Technical manuscript,  
OCT 75 37P McNamara, John F. ; Sharma,  
Sushil K. ;  
REPT. NO. CERL-TM-M-165

## UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: Presented at the Joint Meeting of  
the U.S. - Japan Panel on Wind and Seismic  
Effects (6th), May 1974, Gaithersburg, Md.  
DESCRIPTORS: \*Construction materials, Steel,  
\*Dynamic response, Earthquake resistant structures,  
Dynamic loads, Stress strain relations, Finite  
element analysis, Nonlinear systems  
IDENTIFIERS: Steel A-36, \*Earthquake  
engineering, \*Energy dissipation, Steel  
construction, Dynamic structural analysis

(U)

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An analytical procedure is developed which predicts  
nonlinear cyclic structural response under large  
reversals of plastic strains. The structure is  
discretized by means of the finite element  
approximation, and the material behavior is simulated  
by a refined analytical model which describes the  
realistic hysteretic stress-strain curves of A36  
steel under arbitrary cycles of load. In order to  
test the validity of this material model some  
comparisons are made with experimental values of the  
inelastic response of a simply supported beam under  
cyclic bending. The model is subsequently used in  
the dynamic analysis of a portal frame subjected to a  
selection portion of the El Centro NS  
earthquake acceleration record.

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## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A016 985 13/13

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILLNumerical Solution Schemes for Highly  
Nonlinear Static Structural Behavior.

(U)

DESCRIPTIVE NOTE: Technical manuscript,  
OCT 75 28P McNamara, John F. ;  
REPT. NO. CERL-TM-M-102

## UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: Presented at U.S. Army  
Numerical Analysis Conference, Philadelphia, Pa.,  
Feb 13-16, 1974.  
DESCRIPTORS: \*Structures, Structural response,  
Loads (Forces), Cyclic tests, Finite element  
analysis, Stiffness, Earthquake resistant  
structures, Nonlinear systems  
IDENTIFIERS: \*Cyclic loads, \*Earthquake  
engineering

(U)

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The feasibility and accuracy of a number of  
solution schemes for problems of static nonlinear  
structural response are studied. The structure is  
modeled by the finite element method, and the  
nonlinearities are mainly those of material behavior,  
but large displacement effects are also considered.  
It is shown that accepted solution approaches do  
not work as expected in the case of cyclic behavior  
of the structure around its limit load level.  
Results from two different finite element  
structural models are compared with those of an  
experiment for a simply supported beam undergoing  
load reversals at its midpoint. This simple  
example illustrates the numerical problems  
encountered in analyzing engineering structures under  
severe lateral loads which initiate failure modes in  
the structure.

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A016 984 5/1 12/2

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILL

Development of Heuristic Procedures to  
Analyze the Production-Transportation  
Problem.

(U)

DESCRIPTIVE NOTE: Technical manuscript,  
OCT 75 74P Worrel, Edward J. , III;  
Hogg, Gary L. ;  
REPT. NO. CERL-TM-D-61

UNCLASSIFIED REPORT

DESCRIPTORS: \*Management planning and control,  
\*Industrial production, \*Distribution theory,  
Inventory control, Transportation, Network flows,  
Cost analysis, Computerized simulation,  
Mathematical models, Decision making, Heuristic  
methods

(U)

IDENTIFIERS: Transportation models, Out of kilter  
algorithm

(U)

A methodology has been developed to systematically  
analyze a production-transportation problem subject  
to stochastic demand. First the problem is  
transformed into a network flow equivalent. Then  
flow data are generated through a series of  
simulation runs, using a simulation program developed  
around the out-of-kilter algorithm, GASP II  
subroutines, and demand determined by Monte Carlo  
procedures. The data are then interpreted using  
developed procedures to determine plant market pairs  
which could be candidates for increase/decrease of  
flow depending on established conditions. An  
example problem is provided to demonstrate the  
usefulness of the methodology and the data available  
after a simulation run. The example problem has  
been constructed with production costs and  
transportation costs between any plant-market pair  
being nonlinear.

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AD-A016 984

UNCLASSIFIED

PAGE

191

AD-A016 919

UNCLASSIFIED

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A016 919 15/5 5/1 5/2

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILL

Specification Preparation Methods--State of  
the Art.

(U)

DESCRIPTIVE NOTE: Final technical rept.,  
SEP 75 23P Neely, Edgar S. , Jr;  
REPT. NO. CERL-TR-P-46  
PROJ: DA-4-A-062103-A-891  
TASK: 4-A-062103-A-89106

UNCLASSIFIED REPORT

DESCRIPTORS: \*Military planning, \*Specifications,  
\*Computer applications, Cost analysis, On line  
systems, Questionnaires, Management planning and  
control, Management information systems, Logistics,  
Preparation

(U)

This report presents the state of the art in  
construction specification preparation methods.  
Special emphasis is given to computerized  
preparation systems. The report explains the  
approach used to identify the current preparation  
methods, discusses the response and analysis to a  
Construction Specifications Institute (CSI)  
membership state-of-the-art survey, compares  
computerized preparation systems, presents the  
results from a cost analysis study, and summarizes  
the results and conclusions and makes  
recommendations.

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A016 788 5/1 13/3

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILL

Construction Equipment Cost Guide.

(U)

DESCRIPTIVE NOTE: Final rept.

OCT 75 108P Neely, E. ;

REPT. NO. CERL-TR-P-52

UNCLASSIFIED REPORT

DESCRIPTORS: \*Construction equipment, \*Cost analysis, Contracts, Government procurement, Salaries, Rates, Operators(Personnel), Contract administration, Economic analysis, Pricing

IDENTIFIERS: \*Construction management, \*Ownership costs

(U)

(U)

The purpose of this guide is to assist field pricing support personnel (estimators, negotiators, price analysts, auditors, etc.) in estimating construction equipment hourly ownership and operating rates. The guidance provided is in accordance with general concepts of the contract cost principles and procedures in Armed Services Procurement Regulations (ASPR Section 15) and Federal Procurement Regulations (FPR Part 1-15). The manual is intended for use in negotiating construction procurements which require an independent government estimate by regulation. The original construction contract is awarded as a result of an advertised procurement while contract modifications to advertised procurements are negotiated. The cost estimating concepts of these two procurement types are different.

(U)

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A015 973 15/3.1 9/2

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILL

Facility Simulation Model for Advanced BMD

(U)

Systems. Volume VII: Data Base.

DESCRIPTIVE NOTE: Final rept.,

APR 75 241P Kao, A. ; Blackmon, R. ;

McDowell, E. ;

REPT. NO. CERL-TR-C-28-Vol-7

PROJ: DA-4-A-664717-D-895

TASK: 4-A-664717-D-89502

UNCLASSIFIED REPORT

Availability: Available in microfiche only.

SUPPLEMENTARY NOTE: See also Volume VI, AD-A010 632.

DESCRIPTORS: \*Antimissile defense systems, \*Hardened structures, \*Computerized simulation, \*Data bases, Heating, Ventilation, Air conditioning equipment, Facilities, Underground facilities, Power equipment, Computer programming

(U)

This data base volume describes the data base developed to support the structural, power, mechanical (HVAC/PC), and miscellaneous modules. Assumptions and methods used to derive the data and formats used to store the data are documented.

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AD-A016 788

UNCLASSIFIED

PAGE

192

AD-A015 973

UNCLASSIFIED

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## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A015 616 21/4 13/2

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILL

Technical Evaluation Study: Solid Waste  
Heat Reclamation at Philadelphia Naval  
Shipyard, Philadelphia, Pa.

(U)

DESCRIPTIVE NOTE: Technical rept.,  
MAY 74 45P Rigo, H. G. ;

REPT. NO. CERL-TR-E-48

UNCLASSIFIED REPORT

DESCRIPTORS: \*Solid wastes, \*Fuels, Reclamation,  
\*Incinerators, \*Boilers, Waste disposal, Naval  
shore facilities, Garbage, Cost analysis, Waste  
treatment

(U)

IDENTIFIERS: \*Waste recycling, \*Solid waste  
disposal, Refuse disposal, Heat recovery, Waste  
heat boilers, Philadelphia Naval Shipyard,  
Design

(U)

This study was conducted to evaluate the solid waste disposal problems and to ascertain the economic and technical feasibility of solid waste heat reclamation incineration at Philadelphia Naval Shipyard, Philadelphia, PA. An analysis of the solid waste stream was performed, applicable standards were evaluated, and a technology review of cost/performance characteristics of current solid waste heat reclamation units, including processing of solid wastes and burning in existing boilers, was conducted. Recommendations were based on facility benefit-to-cost ratio considerations and operation success probabilities. It was found that steam generation through waste heat reclamation, by incineration or processing and using the refuse as a fuel in an existing boiler, was both technically and economically feasible. The latter method has the highest benefit-to-cost ratio (Alternative methods of disposing of on-base generated solid waste are also suggested.

(U)

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A015 615 21/4 13/2

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILL

Technical Evaluation Study: Energy-  
Recovery Solid Waste Incineration to Naval  
Station Mayport, Florida.

(U)

DESCRIPTIVE NOTE: Technical rept.,  
FEB 75 46P Hathaway, S. A. ; Rigo, H. G. ;

REPT. NO. CERL-TR-E-51

UNCLASSIFIED REPORT

DESCRIPTORS: \*Solid wastes, \*Fuels, \*Reclamation,  
Naval shore facilities, Garbage, Waste disposal,  
Incinerators, Boilers, Electric power plants,  
Fuel oil, Cost analysis, Florida

(U)

IDENTIFIERS: \*Solid waste disposal, Refuse  
disposal, Fuel substitution, Oil wastes, Waste  
recycling, Design, Naval Station Mayport

(U)

IAC ACCESSION NUMBER: PL-900504

IAC DOCUMENT TYPE: PLASTIC-MICROFICHE--  
This study was undertaken to assess the feasibility of energy-recovery incineration of solid waste at Naval Station Mayport, Florida. It was found that use of solid waste as a fuel for steam generation at Naval Station Mayport is technically and economically feasible and environmentally compatible. The recommended system employs a clean-fuel fired, basket-grate incinerator in series with an energy-recovery train consisting of an afterburner and boiler. The afterburner fires fuel reclaimed at an on-station barge and fuel tank (RDF) is fired one shift, five days per week, with the auxiliary burner assuming the load during nights and weekends. Production of 22,700 pounds of steam/hour can be achieved. The benefit-to-cost ratio of this system is 8:1. Through implementation of this system a net fuel savings of 345,800 gallons/yr can be achieved, excluding the amount of the reclaimed oil used. Design criteria are provided.

(U)

IAC SUBJECT TERMS: P--(U)Steam generation-Waste oils,  
Incineration-RDF, Incineration-Solid wastes,  
Shipboard wastes-Energy recovery, RDF-Heat

AD-A015 615

AD-A015 616

UNCLASSIFIED

PAGE

193

UNCLASSIFIED

099062

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099052

AD-A015 614 21/4 13/2

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILLTechnical Evaluation of the Feasibility of  
Burning Eco-Fuel at Philadelphia Naval  
Shipyard.

(U)

DESCRIPTIVE NOTE: Letter rept.

JAN 74 55P

REPT. NO. CERL-LR-E-25

UNCLASSIFIED REPORT

DESCRIPTORS: \*Boilers, \*Garbage, \*Fuels, Solid  
wastes, Performance(Engineering), Naval shore  
facilities, Combustion, waste disposal,  
Reclamation

(U)

IDENTIFIERS: Refuse disposal, waste recycling,  
\*Solid waste disposal

(U)

IAC ACCESSION NUMBER: PL-900507

IAC DOCUMENT TYPE: PLASTIC -MICROFICHE--

The purpose of the evaluation was to determine the  
economic and technical feasibility of firing Eco-  
fuel in the Navy-owned boilers at Phil NSY.Eco-fuel is prepared from municipal refuse and  
garbage. As part of the evaluation, any technical  
deficiencies were to be identified. A series of  
recommendations are made which would remedy any  
identified technical deficiencies.

(U)

IAC SUBJECT TERMS: P--(U)Incineration-RDF,  
Combustion-RDF, Economics-Solid waste disposal,  
Burners-Municipal wastes, RDF-Steam generation,  
Synthesis-RDF, Ecology-Fuel, ZZ MTDE, ZZ  
Unlimited.

AD-A015 614

UNCLASSIFIED

PAGE

194

AD-A015 613

UNCLASSIFIED

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## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A015 613 13/2 10/2

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILLTechnical Evaluation Study: Solid Waste  
Heat Reclamation at Naval Air Test Center  
Patuxent, Md.

(U)

DESCRIPTIVE NOTE: Technical rept.,

NOV 74 45P

E. : Rigo, H. G. ; Quindry, G.

REPT. NO. CERL-TR-E-60

UNCLASSIFIED REPORT

DESCRIPTORS: \*Waste disposal, \*Naval air stations,  
\*Fuels, Incinerators, Reclamation, Collection,  
Earth fills, Cost estimates, Trucks, Maryland,  
Solid wastes

(U)

IDENTIFIERS: \*Solid waste disposal, Sanitary  
landfills, Refuse disposal, Fuel substitution,  
Hauling, Routing, Naval Air Test Center

(U)

IAC ACCESSION NUMBER: PL-900302

IAC DOCUMENT TYPE: PLASTIC -MICROFICHE--

This study was initiated to evaluate the solid  
waste disposal system at Naval Air Test  
Center, Patuxent, MD, and to ascertain the  
feasibility of solid waste heat reclamation at the  
base. The solid waste stream was analyzed,  
applicable standards were evaluated, and the cost and  
performance characteristics of current solid waste  
heat reclamation units were reviewed.

(U)

Recommendations were based on consideration of the  
facility benefit to cost ratio. It was found that  
continuing the current method of solid waste  
disposal, an on-base landfill operation, would be  
economically and environmentally sound. New solid  
waste collection equipment and altered procedures at  
the landfill site were recommended to substantially  
improve the economics and life expectancy of the on-  
base refuse management system.

(U)

IAC SUBJECT TERMS: P--(U)Solid waste pollution-  
Recycling, Pollutants review-Survey, Municipal  
pollution-Incineration, ZZ MTD, ZZ Unlimited.

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A015 469 13/3

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILLTechnical Information Pamphlet on Fibrous  
Concrete Overlays--Fort Hood Project.

(U)

DESCRIPTIVE NOTE: Final rept.,

AUG 75 20P

REPT. NO. CERL-TR-M-147

PROJ: DA-4-A-764717-D-895

TASK: 4-A-764717-D-89504

UNCLASSIFIED REPORT

DESCRIPTORS: \*Concrete, \*Pavements, Overlays,  
Fibers, Reinforcing materials, Steel,  
Performance tests, Tracked vehicles  
IDENTIFIERS: \*Ferrocement, Design, Steel  
reinforced composites

The first full-scale nonexperimental steel fibrous  
concrete placement was completed in March 1974 at  
Fort Hood, TX. An overlay of 3,175 cu yd of  
concrete was placed on a Tactical Equipment  
Park adjacent to Building 9529. The existing  
pavement consisted of 5 to 7 in. of asphaltic  
concrete on a stabilized limestone base. The area  
is a maintenance hardstand for M-60 tanks, M-88  
tank retrievers, and other tracked vehicles.  
Because of the severe wear and rutting caused by  
the action of the tracks, the flexible pavement  
surface has required replacement every 3 to 4 yr.  
Fibrous concrete was selected as a more lasting  
solution to the problem. This report details the  
placement procedures used on the Fort Hood  
project and recommends other suitable techniques.  
Cost and preliminary performance evaluations of the  
Fort Hood overlay are presented.

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A015 020 13/2 5/1

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILLProcedures for Reviewing Environmental Impact  
Assessments and Statements for Construction  
Projects.

(U)

DESCRIPTIVE NOTE: Final rept.,

AUG 75 26P

;Chatterjee,S.; Jain,R. K. ;Drobny,N. L.

REPT. NO. CERL-TR-E-73

PROJ: DA-4-A-762720-A-896

TASK: 4-A-762720-A-89601

UNCLASSIFIED REPORT

DESCRIPTORS: \*Environmental engineering,  
\*Environmental protection, \*Construction,  
\*Reviews, Methodology, Civil engineering,  
Assessment, Factor analysis, Ratings,  
Specifications, Management planning and control,  
Army

(U)

IDENTIFIERS: Guidelines, Environmental impact  
assessments, Environmental impact statements,  
Project screening factors, Factor rating criteria

(U)

This report presents systematic procedures designed  
to assist administrative and staff personnel in  
quickly and accurately reviewing environmental impact  
assessments and statements (EIA/EIS). In  
addition, these guidelines will help the EIA/EIS  
preparer and reviewer assess the completeness and  
accuracy of the final document. The report  
describes the components of the review procedure and  
includes an example of illustrate its implementation.  
Project screening factors, suggested factor rating  
criteria, and methodology for ranking projects on  
three levels are presented in tabular form to  
facilitate understanding and application of the  
review process. (Author)

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AD-A015 469

UNCLASSIFIED

PAGE

195

AD-A015 020

UNCLASSIFIED

099062

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A014 945 13/8 20/11

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILLIsotropic-Kinematic Hardening Model for  
Elastic-Plastic Cyclic Structural  
Analysis.

(U)

DESCRIPTIVE NOTE: Final rept.,

AUG 75 18P McNamara, John F. ; Sharma,

Sushil K. ;

REPT. NO. CERL-TR-W-148

PROJ: DA-4-A-161102-AT-23

TASK: 4-A-161102-AT-2302

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Hardening, \*Plastic properties,  
\*Structural properties, \*Stress strain relations,  
Elastic properties, Steel, Kinematics, Theory

(U)

This report outlines the use of a combined isotropic-kinematic hardening theory to analyze structures undergoing large reversals of plastic strain. The numerical work is based on the finite element method, and a suitable incremental stress-strain relation of combined hardening theory of plasticity is implemented; the theory requires only minor additions to the more common kinematic or isotropic hardening rules. The report shows the required parameters describing the kinematic and isotropic portions of the combined hardening theory can be extracted from cyclic mechanical tests. The theory is used to determine the cyclic response of a mild steel beam, the uniaxial arbitrary cyclic behavior of mild steel is very accurately modeled by a series of spring-slider elements. (Author)

(U)

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A014 146 13/13 13/2 5/1

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILLEnvironmental Protection Guidelines for  
Construction Contract Specification  
Writers.

(U)

DESCRIPTIVE NOTE: Final rept.,

JUL 75 124P Riggins, R. E. ; Fileccia, R.

J. ; Hittle, D. C. ; Novak, E. W. ; Schomer, P.

D. ;

REPT. NO. CERL-IR-E-72

PROJ: DA-4-A-162121-A-896

TASK: 4-A-162121-A-89605

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Construction, \*Environmental protection, \*Contracts, Specifications, Methodology, Management planning and control, Water pollution, Air pollution, Surveys, Noise pollution, Water quality, Noise reduction

IDENTIFIERS: Guidelines, Landscape protection, Air pollution abatement, Water pollution abatement

(U)

(U)

This report emphasizes the need for environmental provisions in construction contracts and develops related guidelines for construction contract specification writers. Factors which determine the types of environmental provisions needed in construction contracts are examined, and a format for the environmental section of construction contracts is developed. Environmental provisions are described and examples are given, with special emphasis upon landscape protection, air quality, water quality, and noise.

(U)

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A014 141 11/4 13/3

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILLResin Bound Aggregate Material  
Systems.

(U)

DESCRIPTIVE NOTE: Final rept.,  
JUL 75 22P Naus, D. J. ;  
REPT. NO. CERL-TM-M-145

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Reinforced plastics, Polyester  
plastics, Epoxy resins, Vinyl plastics, Concrete,  
Construction materials, Particle size, Binders,  
Modules of elasticity, Building  
blocks(Engineering), Compressive properties,  
Tensile properties, Thermal expansion, Absorption,  
Water, Flexural properties, Fiber reinforced  
composites  
IDENTIFIERS: \*Polymer concretes, \*Aggregates,  
Fiberglass reinforced plastics

(U)

(U)

IAC ACCESSION NUMBER: PL-023026

IAC DOCUMENT TYPE: PLASTIC -HARD COPY--

Data are presented on composition, strength,  
modulus of elasticity and thermal expansion for  
polymer concrete material systems. Resin systems  
included polyesters, epoxies, and vinyl esters.  
Fine and coarse aggregate fillers in volume  
fractions up to 0.85 were incorporated into the resin  
binders. Fiber reinforcement of various types,  
lengths, and contents was incorporated into several  
mixes. By a judicious selection of resin  
modifiers and filler materials a wide range of  
densities and strengths may be obtained. Material  
property data on coefficients of thermal expansion,  
bond strength, water absorption, and effect of  
elevated temperatures have been obtained.

(U)

IAC SUBJECT TERMS: P--(U)Concrete/polymers--  
Mechanical properties, Composite blocks-Humidity  
effects, Concrete/polymers-Flexural strength, ZZ  
Unlimited.;

AD-A014 141

UNCLASSIFIED

PAGE

197

AD-A014 140

UNCLASSIFIED

099062

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A014 140 15/3.1 9/2 16/1

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILL

Facility Simulation Model for Advanced BMD  
Systems: Operation and Maintenance Program  
(DANDM).

(U)

DESCRIPTIVE NOTE: Final rept.,  
JUL 75 25P  
REPT. NO. CERL-TR-C-46  
PROJ: DA-4-A-664717-D-895  
TASK: 4-A-664717-D-89502

## UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: See also report dated Apr 75, AD-  
A010 632.

DESCRIPTORS: \*Antimissile defense systems,  
\*Computerized simulation, Cost estimates, Computer  
programs, Maintenance, Hardened structures  
IDENTIFIERS: \*DANDM computer program

(U)

(U)

The Operation and Maintenance Program  
(Program DANDM) estimates the annual operation  
and maintenance cost of hardened facilities, such as  
Defense Unit, Tactical Operation Center,  
and Missile Field, for both initial and  
subsequent years. The cost is calculated on the  
total facility basis rather than on an individual  
item of equipment basis. Techniques used for  
developing the cost estimating relationships, a  
description of the computer program, instructions for  
using the computer program, and an example problem  
are presented. This program is to replace the  
original Program DANDM.

(U)

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A013 403 8/7 13/13 20/6

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILLA Scanning Electron Microscope  
Investigation of Statically Loaded Foundation  
Materials. (U)

DESCRIPTIVE NOTE: Final rept.,

JUN 75 45P Aufmuth, Raymond E. ; Aleszka,  
James C. ;  
REPT. NO. CERL-TR-M-136

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Rock mechanics,  
\*Foundations(Structures). \*Electron microscopy,  
Construction materials, Bending stress,  
Compression, Cracking(Fracturing), Crack  
propagation, Tension, Fracture(Mechanics),  
Surface properties, Microphotography, Video tape  
recording, Test methods, Failure (U)

Selected rock samples were prepared and tested to failure in bending, tension, and compression test modes within the vacuum stage of a scanning electron microscope. The load was applied very slowly so that crack initiation and growth could be observed. The latter was observed visually and was recorded by both photography and video tape. The cracked surfaces of the failed specimens were further evaluated by more standard methods; two evaluation techniques were used to determine the failure the mechanisms involved for each test mode and rock type studied. (U)

AD-A013 403

UNCLASSIFIED

PAGE 198

AD-A013 387

UNCLASSIFIED

099062

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A013 387 13/9 13/3 13/2

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILLEvaluation of Lunar Drilling Technology for  
Terrestrial Applications. Diamond Drill Bit  
Evaluation. (U)

DESCRIPTIVE NOTE: Final rept.,

JUL 75 54P Aufmuth, R. E. ;  
REPT. NO. CERL-TR-M-138  
PROJ: DA-4-A-162621-A-890

## UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: See also AD-782 914.  
DESCRIPTORS: \*Drilling machines, \*Drills,  
Technology, Diamonds, Drilling, Core sampling,  
Rock drilling, Performance(Engineering)  
IDENTIFIERS: \*Technology utilization, \*Technology  
transfer, Diamond drill bits, Commercial diamonds,  
Industrial diamonds (U)

This report presents the results of a study evaluating four diamond drill bits of the design developed for lunar exploration. Two of the bits were constructed with the original diamond drill bits for NASA, using gem quality, geometrically oriented diamonds. The other two bits were cast specifically for this study, using standard WA-1 industrial diamonds, randomly oriented. Identical rock materials, representing the three major rock classifications, were drilled with each of the bits until the bits were worn out or destroyed. (U)

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A013 380 11/6

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILLFatigue Failure of Hydrogen-Embrittled  
High-Strength Steels.

(U)

DESCRIPTIVE NOTE: Final rept.,

JUL 75 21P Kim, Y. G.; Aleszka, J. ;

REPT. NO. CERL-TR-M-143

PROJ: DA-4-A-161102-B-52-E

TASK: 4-A-161102-B-52-E-09

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: Report of Characterization of  
Fracture of Engineering Materials.

DESCRIPTORS: \*Steel, \*Hydrogen embrittlement,

Fatigue(Mechanics), Fracture(Mechanics),

Cyclic tests, Crack propagation

IDENTIFIERS: Steel HY-130, Steel T-1

(U)

(U)

This report studies the fatigue fracture behavior of two hydrogen-embrittled high-strength steels, HY-130 and T-1, under cyclic load conditions. The cathodically charged, quenched, and tempered martensitic steels were subjected to fatigue tests conducted at room temperature in air at 10 cycles per second in a tension-tension sinusoidal mode. Stereo viewing of SEM fractographs, in conjunction with optical microscopy, was used to identify the topography of the fatigue zone. The fatigue zone of hydrogen-embrittled samples displayed a dispersion of craters which were absent in the fatigue zone of unembrittled specimens. It is proposed that the crater-type fracture mode in hydrogen-embrittled steels under cyclic load conditions is formed by the simultaneous, sub-surface nucleation of transverse and longitudinal cracks. (U)

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A013 359 6/6 5/2

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILLA Review and Analysis of Environmental  
Impact Assessment Methodologies.

(U)

DESCRIPTIVE NOTE: Final rept.,

JUN 75 23P Jain, R. K.; Urban, L. V.

REPT. NO. CERL-TR-E-69

UNCLASSIFIED REPORT

DESCRIPTORS: \*Environments, \*Reports, Technical writing, Impact, Assessment, Methodology, Quality, Project personnel, Standards, Land use, Adverse conditions, Forecasting, Environmental protection

IDENTIFIERS: Environmental Impact, Report

(U)

(U)

Many methodologies have been developed to help the environmental impact assessment/statement (EIA/EIS) preparer fully respond to the Executive Office of the President, Council on Environmental Quality guidelines for EIA/EIS content. This report presents guidance for individual project evaluation for the purpose of choosing a methodology; methodology categorization by type of impact identification; and criteria for methodology evaluation. In addition, the document presents a brief, critical review and analysis of 19 methodologies, with the intent of showing their strengths and weaknesses in terms of individual project applicability and introducing the user to the variety of techniques being developed. (Author)

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AD-A013 380

UNCLASSIFIED

PAGE

199

AD-A013 359

UNCLASSIFIED

099062

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A012 732 13/13 13/2 8/11

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILLModal Analysis Methods in Seismic Design  
for Buildings.

(U)

DESCRIPTIVE NOTE: Final rept. Aug 74-Feb 75,  
JUN 75 36P Stockdale, William K. ;  
REPT. NO. CERL-TR-M-132  
PROJ: DA-4-A-76719-AT-05  
TASK: 4-A-76719-AT-0502

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Earthquake resistant structures,  
\*Civil engineering, Construction, Standards,  
Strength(General), Earthquakes, Seismic waves,  
Ground motion, Intensity, Degrees of freedom,  
Vibration, Damping, Shear stresses,  
Force(Mechanics), Military facilities,  
Hazards, Beams(Structural), Elastic  
properties, Manuals

(U)

IDENTIFIERS: Modal ANALYSIS METHODS, Architectural  
engineering, Inelasticity, Building codes, SEAOC  
building code, Design

(U)

This report is the first step in preparing a change  
to the tri-services manual TM 5-809-10, Seismic  
Design for Buildings. Changes in this manual  
are necessary to provide guidance for the design of  
critical military facilities which must remain  
functional after subjection to strong earthquakes.  
This report describes and discusses modal analysis  
methods used in the dynamic analysis of structures in  
conjunction with the earthquake response spectra and  
time history methods. Elastic and inelastic  
conditions are discussed, as well as structural  
damping and assumptions and limitations of the  
methods. Example calculations are included.  
(Author)

(U)

AD-A012 732

UNCLASSIFIED

PAGE

200

AD-A012 731

UNCLASSIFIED

099062

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A012 731 11/2 1/5 13/3

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILLFibrous Concrete Pavement Design  
Summary.

(U)

DESCRIPTIVE NOTE: Final rept.,  
JUN 75 15P Rice, John L. ;  
REPT. NO. CERL-TR-M-134  
PROJ: DA-4-A-062112-A-891  
TASK: 4-A-062112-A-89104

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Reinforced concrete, \*Steel, \*Metal  
fibers, \*Landing fields, \*Pavements, \*Stresses,  
Flexural properties, Elastic properties,  
Deflection, Construction, Joints,  
Foundations(Structures), Layers, Overlays,  
Drainage, Fibers

(U)

This report presents interim design guidance for  
fibrous concrete pavements for airfields. The  
Corps of Engineers' current design procedures are  
modified to account for the peculiarities of fibrous  
concrete. Included in the report are discussions of  
design procedures for slabs on grade and overlays.  
No recommendations are presented concerning  
production of fibrous concrete; however, sources of  
information about mix designs, batching, and handling  
are noted in references cited within the report.  
(Author)

(U)



## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A012 729 18/6 16/1

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILLEMP Shielding Properties of Conduit Systems  
and Related Hardware.

(U)

DESCRIPTIVE NOTE: Final rept.,

JUN 75 102P Leverenz, D. J.; Nielsen, P.

H. ; McCormack, R. G. ;

REPT. NO. CERL-TR-C-19

UNCLASSIFIED REPORT

DESCRIPTORS: \*Electromagnetic shielding.

\*Electromagnetic pulses, \*Pipes, \*Radiation  
hardening, Steel, Protective coverings, Electric  
cables, Transmission lines, Launching sites,  
Guided missile silos

(U)

IDENTIFIERS: Safeguard antiballistic missile system.

(U)

\*Conduits

This report presents the results obtained by CERL over the past 3 years under its investigation of the shielding properties on conduit systems, conduit-related hardware, and the effects of improper field assembly on the shielding of conduit systems. The measurements were made by injecting EMP-type current pulses onto test conduits and measuring the signal picked up on a sense wire inside the conduit. Results are presented for the measurement of both diffusion and leakage signals. The diffusion signal provides a base line for the conduit shielding since it is the optimum shielding obtainable for a given size and material of conduit. The leakage signals represent a degradation of the conduit shielding due to the insertion of conduit hardware required to assemble the conduit runs, or to the improper assembly of the conduit system. Included in the leakage study were various hardware items including couplings, unions, conduits of various sizes, flexible conduit, condulets, lock nuts, threaded hubs, and a variety of conduit gaskets. In addition, the effects of thread corrosion, use of different conductive compounds, various methods of compound application, welding near couplings, and the inadequate tightening of threaded joints were evaluated. The greatest single factor in the degradation of the shielding effectiveness of conduit

(U)

AD-A012 729

UNCLASSIFIED

PAGE

201

AD-A012 728

UNCLASSIFIED

099062

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A012 728 13/13 13/2 8/11

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILLGuidelines for Developing Design Earthquake  
Response Spectra.

(U)

DESCRIPTIVE NOTE: Final rept.,

JUN 75 362P Hays, Walter W.; Algermissen,

S. T.; Espinosa, Alvaro F.; Perkins, David

M.; Rinehart, Wilbur A. ;

REPT. NO. CERL-TR-M-114

PROJ: CERL-72-32

UNCLASSIFIED REPORT

Availability: Microfiche copies only.

DESCRIPTORS: \*Earthquake resistant structures,  
\*Civil engineering, \*Seismology, Construction,  
Site selection, Ground motion,

(U)

Foundations (Structures), Earthquakes, Seismic  
waves, Propagation, Intensity, Power spectra,  
Loads (Forces), Shaking, Attenuation, Soils,  
Faults (Geology), Geological survey, Hospitals,  
Communications central, Electric power plants,  
Fire fighting, Military facilities, Architecture,  
State of the art, United States, Hazards

(U)

IDENTIFIERS: Guidelines, Architectural

(U)

engineering, Fire stations

State-of-the-art information required for developing design earthquake response spectra is compiled and synthesized in a manual-like format to provide the user with general guidelines for estimating the ground motion load expected for sites of interest located throughout the United States. The information contained in this document constitutes a subset of the comprehensive body of knowledge available in the field. This subset is considered pertinent for a technical understanding of the theoretical and empirical bases currently used to develop design earthquake response spectra for use in construction, design, and evaluation of important facilities. These guidelines relate to the following analyses: (1) determination of seismicity parameters, (2) estimation of seismic attenuation functions, (3) estimation of maximum intensity of shaking, (4) estimation of ground motion response spectra, and (5) estimation of local soil amplification effects. Basic information

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## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A012 727 5/1 5/2 13/2

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILLAutomated Design and Construction Progress  
Reporting Procedures. Volume II.

(U)

DESCRIPTIVE NOTE: Interim technical rept. no. 4, Apr 72-  
Oct 73,

JAN 75 358P Lapp, Roger L.; Poskus,

Uldis R.;

REPT. NO. CERL-IR-A-23-Vol-2

PROJ: DA-4-A-062103-A-891

TASK: 4-A-062103-A-89106

## UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: See also Volume 1, AD-771 178.

DESCRIPTORS: \*Management information systems,  
Military engineering, Data bases, Data storage  
systems, Construction, Computer aided design,  
Military facilities, Army planning, Reports,  
Methodology

(U)

IDENTIFIERS: Automated reports

(U)

This report describes progress to date in  
automating design and construction progress reporting  
procedures for Army constructed military  
facilities. An analysis of the major reports used  
by the Corps of Engineers in managing design and  
construction is presented. Representative reports  
to be automated have been selected from the various  
management levels of the Corps: Office of the  
Chief of Engineers, Division Offices,  
District Offices, and Field (Area or  
Resident) Offices.

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## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A012 110 13/3

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILLAn Investigation of Techniques for Achieving  
Exposed Aggregate Surfaces for Site-Cast  
Concrete.

(U)

DESCRIPTIVE NOTE: Final technical rept.,

JUN 75 22P Naus, Daniel J.; Freeman,

Randy; Muir, Wayne; Williamson, G. R.;

REPT. NO. CERL-TR-M-61-Rev

PROJ: DA-4-DW-78012-AOK-1

TASK: 4-DW-78012-AOK-103

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Concrete, \*Surface finishing,  
\*Buildings, Casting, Formulations, Costs,

Military facilities, Army

IDENTIFIERS: Aggregates

(U)

(U)

This report describes techniques for producing  
acceptable exposed aggregate finishes for site-cast  
concrete, including chemical retardation and  
mechanical methods. Potentially promising  
techniques are evaluated with regard to labor  
requirements, material requirements, cost factors,  
and limitations.

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AD-A012 727

UNCLASSIFIED

PAGE

202

AD-A012 110

UNCLASSIFIED

099062

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099052

AD-A012 109 13/2

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILLEnvironmental Protection Guidelines for the  
Resident Engineer.

(U)

DESCRIPTIVE NOTE: Final rept.,

MAY 75 43P Riggins, Robert E. ;

REPT. NO. CERL-TR-E-57

PROJ: DA-4-A-162121-A-896

TASK: 4-A-162121-A-89605

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Construction, \*Pollution, \*Contract  
administration, Abatement, Air pollution, Water  
pollution, Waste disposal, Land use, Sites.

Erosion, Monitoring, Vegetation

IDENTIFIERS: Guideline development, Air pollution  
control, Water pollution control, Esthetics,  
Solid waste disposal, Environmental quality

(U)

(U)

This report presents guidelines to assist resident engineers in monitoring compliance with the environmental provisions of construction contracts. It describes general environmental responsibilities of the resident engineer; sources of environmental pollution; techniques for providing environmental protection; and methods of evaluating a construction site for potential environmental problems.

(U)

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A011 589 1/5 15/5

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILLThe Status of Development of a Maintenance  
Management System for Airfield Pavements.

(U)

DESCRIPTIVE NOTE: Final rept. Jul 71-Jun 74,

MAY 75 76P McManus, P. F. ;

CONTRACT: F29601-71-X-0002

MONITOR: AFWL TR-74-154

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Pavements, \*Runways, \*Preventive maintenance, Management, Failure (Mechanics), Cost effectiveness, Scheduling, Performance (Engineering), Detection, Computer programming, Military facilities, Civil engineer

IDENTIFIERS: PREDICT Computer program, PAVER computer program, Pavement distress

(U)

(U)

The objective of the project is to develop methodology for determining cost-effective plans for preventive maintenance of airfield pavements so that functional requirements are met with a minimum of major repair and reconstruction effort. The approach for meeting these objectives is to create a computerized Maintenance Management System which will predict maintenance requirements, analyze alternative schedules of maintenance activities and determine cost-effective schedules, monitor actual pavement performance, and provide reports on the performance and cost of pavement facilities to all levels of command. At present, two computer codes are available, PREDICT and PAVER, which have been developed for this project and concurrent projects sponsored by the U.S. Army Corps of Engineers. These programs are recommended for use in test implementations at Air Force bases.

(U)

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A011 235 15/3.1 9/2

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILLFacility Simulation Model for Advanced BMD  
Systems. Volume VIII. Operational  
Manual.

(U)

DESCRIPTIVE NOTE: Final rept.,  
APR 75 20P Kao,A. ;Blackmon,R. ;

McDowell,E. ;

REPT. NO. CERL-TR-C-28-Vol-8

PROJ: DA-4-A-664717-D-895

TASK: 4-A-664717-D-89502

## UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: See also Volume 6, AD-A010  
632.DESCRIPTORS: \*Antimissile defense systems, \*Hardened  
structures, \*Computerized simulation, Heating,  
Ventilation, Air conditioning equipment,  
Underground facilities, Underground structures,  
Power equipment, FORTRAN, Control sequences,  
User needs, Computer programming  
IDENTIFIERS: FORTRAN 4 programming language(U)  
(U)This Operational Manual is the last of eight  
volumes of the Facility Simulation Model study.  
It describes the control cards required for  
operating the model.

(U)

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A011 232 15/3.1 9/2

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILLFacility Simulation Model for Advanced BMD  
Systems. Volume VC. HVAC/PC Module:  
Program Listing.

(U)

DESCRIPTIVE NOTE: Final rept.,  
APR 75 180P Kao,A. ;Blackmon,R. ;

McDowell,E. ;

REPT. NO. CERL-TR-C-28-Vol-5C

PROJ: DA-4-A-664717-D-895

TASK: 4-A-664717-D-89502

## UNCLASSIFIED REPORT

Availability: Available in microfiche only.  
SUPPLEMENTARY NOTE: See also Volume 5B, AD-A010  
715.DESCRIPTORS: \*Antimissile defense systems, \*Hardened  
structures, \*Computerized simulation, Heating,  
Ventilation, Air conditioning equipment,  
Underground facilities, Underground structures,  
Blast loads, Dynamic response, User needs,  
Computer programs  
IDENTIFIERS: \*Process cooling systems(U)  
(U)This HVAC/PC Module volume is divided into a  
user's manual, a program reference manual, and a  
program listing. In this program listing, the  
FORTRAN programs of three programs in the HVAC/  
PC Module are documented. These three programs  
are MAIN1 (HVAC1), HVAC2, and RSPNSR.

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AD-A011 235

UNCLASSIFIED

PAGE

204

AD-A011 232

UNCLASSIFIED

099062

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A011 231 15/3.1 9/2

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILLFacility Simulation Model for Advanced BMD  
Systems. Volume IVC. Power Module:  
Program Listing.

(U)

DESCRIPTIVE NOTE: Final rept.,  
APR 75 45P Kao,A. ;Blackmon,R. ;  
McDowell,E. ;Eng,D. ;  
REPT. NO. CERL-TR-C-28-Vol-4C  
PROJ: DA-4-A664717-C-895  
TASK: 4-A-664717-D-89502

## UNCLASSIFIED REPORT

Availability: Available in microfiche only.  
SUPPLEMENTARY NOTE: See also Volume 4B, AD-A009  
748.

DESCRIPTORS: \*Antimissile defense systems, \*Hardened  
structures, \*Power supplies, \*Computerized  
simulation, Diesel engines, Gas turbines, Fuel  
cells, Electric batteries, Turbogenerators,  
Alternators, FORTRAN, Computer programs  
IDENTIFIERS: POWERM computer program

This Power Module volume is divided into a  
user's manual, a program reference manual, and a  
program listing. In this program listing, the  
FORTRAN program of one program in the Power  
Module is documented. This is Program  
POWERM.

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AD-A011 231

UNCLASSIFIED

PAGE

205

AD-A011 227

UNCLASSIFIED

099062

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A011 227 15/3.1 9/2

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILLFacility Simulation Model for Advanced BMD  
Systems. Volume IVA. Power Module:  
User's Manual.

(U)

DESCRIPTIVE NOTE: Final rept.,  
APR 75 53P Kao,A. ;Blackmon,R. ;Eng,  
D. ;McDowell,E. ;  
REPT. NO. CERL-TR-C-28-Vol-4A  
PROJ: DA-4-A664717-D-895  
TASK: 4-A-664717-D-89502

## UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: See also Volume 3C, AD-A010  
713, and Volume 4B, AD-A009 748.

DESCRIPTORS: \*Antimissile defense systems, \*Hardened  
structures, \*Power supplies, \*Computerized  
simulation, Diesel engines, Gas turbines, Fuel  
cells, Electric batteries, Turbogenerators,  
Alternators, FORTRAN, User needs

(U)

This Power Module Volume is divided into a  
user's manual, a program reference manual, and a  
program listing. In this user's manual, input  
formats are outlined for each power system: diesel  
engine, gas-turbine engine, turbo-alternator, fuel  
cells, and batteries. The module calculates the  
performance characteristics of each system and also  
selects commercially available power systems from a  
data base for both diesel and gas-turbine to meet the  
power output requirements. Five sample problems,  
one for each power system, illustrate the use of the  
Power Module.

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## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A011 226 15/3.1 9/2

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILLFacility Simulation Model for Advanced BMD  
Systems. Volume IIIB. Structural Module:  
Program Reference Manual.

(U)

DESCRIPTIVE NOTE: Final rept.,

APR 75 113p Kao.A. ;Blackmon,R. ;  
McDowell,E. ;

REPT. NO. CERL-TR-C-28-Vol-3B

PROJ: DA-4-A-664717-D-895

TASK: 4-A-664717-D-89502

## UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: See also Volume 3A, AD-A009  
747, and Volume 3C, AD-A010 713.DESCRIPTORS: \*Antimissile defense systems, \*Hardened  
structures, \*Computerized simulation, Structural  
response, Radiation shielding, Underground  
structures, Guided missile silos, Blast loads,  
Ground motion, User needs, Computer programming,  
Cost estimates

(U)

This structural module volume is divided into a  
user's manual, a program reference manual, and a  
program listing. In this program reference manual,  
structural module design procedures are described,  
along with loading functions and radioactive  
shielding. Cost estimates and outrunning ground  
motion are outlined for a shock isolation program.  
Computer program descriptions are given for the  
five related structural models -- aboveground,  
belowground, dome, silo, and shock isolation.

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## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A011 225 9/1 15/3.1

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILLResults of RFI Testing of Safeguard Flexible  
Tunnel Section.

(U)

DESCRIPTIVE NOTE: Final rept.,

MAY 75 24p Levenenz,D. J. ;McConnack,  
R. G. ;Nielsen,P. H. ;  
REPT. NO. CERL-TR-C-16

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Electromagnetic shielding, Tunnels,  
Flexible structures, Antimissile defense systems,  
Tests, Nuclear explosion damage, Electromagnetic  
pulses

(U)

IDENTIFIERS: Safeguard antiballistic missile  
systems

(U)

The report discusses results of the RFI  
shielding-effectiveness testing of a portion of the  
flexible tunnel section used for joining the  
equipment tunnels to the linear plate of the  
SAFEGUARD shielded enclosures. Test results are  
presented for several modifications to the tunnel  
section, including the mounting configuration to be  
used on site. These results indicate that, for  
most configurations, the shielding effectiveness of  
the tunnel section does meet the SAFEGUARD EMP  
specifications. Thus, the choice of configuration  
and material can be selected for construction  
convenience.

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AD-A011 226

UNCLASSIFIED

PAGE

206

AD-A011 225

UNCLASSIFIED

099062

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A011 224 13/13

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILLThe Design of a Plastic Structural System  
(ILIR).

(U)

APR 75 97P Merritt, R. G. ;  
REPT. NO. CERL-TR-M-121  
PROJ: DA-A-91001904

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Structural members. \*Plastics,  
Structures. Structural properties. Materials,  
Loads(forces)  
IDENTIFIERS: Design(U)  
(U)IAC ACCESSION NUMBER: PL-022495  
IAC DOCUMENT TYPE: PLASTIC -HARD COPY--The report considers the use of plastic materials  
in the design of new structural systems. It  
presents a complete design for a 100-man bathhouse to  
be constructed of plastics. The preliminary design  
is based upon a uniformly distributed load of 50 lb/  
sq ft with a safety factor of design. Also  
included are a material selection scheme for the  
design of such facilities, a design summary, and a  
discussion of current methods of testing specimens  
made of plastic materials.

(U)

IAC SUBJECT TERMS: P--(U)Structural plastics-  
Testing. FRP housing-Design. Wall panels-Failure  
analysis. Roof panel-FRP/polyester. Structural foam-  
Strength properties. ZZ Unlimited.;

AD-A011 224

UNCLASSIFIED

PAGE

207

AD-A011 223

UNCLASSIFIED

099062

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A011 223 9/1 15/3.1

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILLDevelopment and Evaluation of Repairs for EMP  
Leaks in Conduit Systems.

(U)

DESCRIPTIVE NOTE: Final rept.,  
APR 75 78P  
R. G. ;Nielsen, P. H. ;  
REPT. NO. CERL-TR-C-17

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Pipes. \*Repair. \*Electromagnetic  
shielding. Electromagnetic pulses, Leakage,  
Antimissile defense systems, Pipe fittings,  
Couplings  
IDENTIFIERS: Safeguard antiballistic missile  
systems

(U)

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The report discusses the development and evaluation  
of repairs for EMP leaks in conduit systems at the  
SAFEGUARD site. Repairs for 4-in. explosion-  
proof conduit unions, communications cable-gripper  
boxes, and non-RFI tight flexible conduit are  
studied.

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## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A011 187 5/11 15/5

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILL

Army Family Housing: Preferences and  
Attitudes About Housing Interiors. Volume  
III: Predictors of Satisfaction with Housing  
Interiors. (U)

DESCRIPTIVE NOTE: Final rept..

APR 75 145P Dressel, D. L.; Brauer, R.  
L.; Neathammer, R. D.; Hann, C. B.; Gorham,  
R. S.;

REPT. NO: CERL-TR-D-48-Vol-3  
PROJ: DA-4-A-664-P-17895  
TASK: 4-A-664-P-17895-03

## UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: See also Volume 2, AD-A007  
741.

DESCRIPTORS: \*Housing(Dwellings). \*Military  
Personnel. \*Attitudes(Psychology). Surveys.  
Floors. Windows. Washers(Cleaners). Kitchen  
equipment and supplies. Predictions

This is the final volume of a three-volume study on  
Army family housing occupants' preferences and  
attitudes about housing interiors. This volume  
presents priority matrices and prediction models for  
occupant satisfaction with family housing features,  
based on occupants' ratings of their present  
quarters. (U)

AD-A011 187

UNCLASSIFIED

PAGE

208

AD-A011 180

UNCLASSIFIED

099062

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A011 180 13/3

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILL

Evaluation of Bentonite Clay for  
Waterproofing Foundation Walls Below  
Grade. (U)

DESCRIPTIVE NOTE: Final rept..

MAY 75 48P Kanarowski, Stanley M. ;  
REPT. NO: CERL-TR-M-93  
PROJ: DA-4-A-162121-A-891  
TASK: 4-A-162121-A-891-02

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Waterproofing. \*Clay minerals.  
walls. Panels. Sprays. Cost estimates. Test  
methods. Construction materials  
IDENTIFIERS: \*Bentonite

Bentonite clay panels and bentonite spray are  
evaluated for waterproofing the exterior surface of  
foundation walls below grade. The evaluation is  
based on a field letter survey and contacts with  
users, architects, and installers of bentonite panels  
and applications of bentonite spray. Two  
installations were observed to provide first-hand  
data. Both bentonite systems performed favorably  
at a cost comparable to conventional systems, but  
lower than most elastomeric systems. Product  
information, including responses from the field, cost  
comparisons, and advantages and limitations for both  
materials, is given. (U)



## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A010 715 15/3.1 9/2

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILLFacility Simulation Model for Advanced BMD  
Systems. Volume VB: HVAC/PC Module:  
Program Reference Manual.

(U)

DESCRIPTIVE NOTE: Final rept.,  
APR 75 203P Kao,A. ;Blackmon,R. ;  
McDowell,E. ;  
REPT. NO. CERL-TR-C-28-Vol-5B  
PROJ: DA-4-A-664717-D-895  
TASK: 4-A-664717-D-89502

## UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: See also Volume 5A dated Apr 75,  
AD-A010 714.

DESCRIPTORS: \*Antimissile defense systems,  
\*Underground facilities, \*Hardened structures,  
Heating, Cooling and ventilating equipment, Air  
conditioning equipment, FORTRAN, Computer  
programming, Instruction manuals, Cost analysis

(U)

The HVAC/PC Module volume is divided into a  
user's manual, a program reference manual, and a  
program listing. The HVAC/PC Module develops a  
conceptual design for the HVAC and PC system and  
estimates its initial and life-cycle costs. The  
computer programs, whose algorithms are explained  
herein, are capable of comparing various system  
configurations in terms of cost, performance, and  
reliability. Although HVAC/PC Programs 1 and  
2 were designed to be used in conjunction with other  
modules (structural, power generation, electrical  
distribution, etc.), they can be used separately to  
design and analyze only the HVAC and PC systems  
of a given hardened facility. This program  
reference manual outlines the intended use of each  
program and explains the algorithms that make up each  
program part.

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## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A010 714 15/3.1

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILLFacility Simulation Model for Advanced BMD  
Systems. Volume VA: HVAC/PC Module:  
User's Manual.

(U)

DESCRIPTIVE NOTE: Final rept.,  
APR 75 141P Kao,A. ;Blackmon,R. ;  
McDowell,E. ;  
REPT. NO. CERL-TR-C-28-Vol-5A  
PROJ: DA-4-A-664717-D-895  
TASK: 4-A-664717-D-89502

## UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: See also Volume 4B dated Apr 75,  
AD-A009 748.

DESCRIPTORS: \*Antimissile defense systems,  
\*Underground facilities, \*Hardened structures,  
Heating, Cooling and ventilating equipment, Air  
conditioning equipment, FORTRAN, Computer  
programming, User needs, Cost analysis

(U)

This HVAC/PC module volume is divided into a  
user's manual, a program reference manual, and a  
program listing. The computer module presented in  
this user's manual is capable of conceptually  
designing and simulating heating, ventilation, and  
air conditioning (HVAC) systems and process cooling  
(PC) systems for hardened military facilities.  
The computer programs are capable of comparing  
various system configurations in terms of cost,  
performance, and reliability. This user's manual  
outlines the intended use of each program, and gives  
instructions for input data and examples of reports  
generated by the two programs.

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AD-A010 715

UNCLASSIFIED

PAGE

209

AD-A010 714

UNCLASSIFIED

099062

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A010 713 15/3.1 9/2

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILLFacility Simulation Model for Advanced BMD  
Systems. Volume IIIC: Structural Module:  
Program Listing.

(U)

DESCRIPTIVE NOTE: Final rept.,

APR 75 158P Kao,A. ;Blackmon,R. ;

McDowell,E. ;

REPT. NO. CERL-TR-C-28-Vol-3C

PROJ: DA-A-764717-D-895

TASK: 4-A-764717-D-89502

## UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: See also Volume 3A dated Apr 75,  
AD-A009 747.

DESCRIPTORS: \*Antimissile defense systems,

\*Underground facilities, \*Hardened structures,

Heating, Cooling and ventilating equipment, Air

conditioning equipment, FORTRAN, Computer programs,

Cost analysis

(U)

This structural module volume is divided into a  
user's manual, a program reference manual, and a  
program listing. In this program listing, the  
FORTRAN programs of five programs in the structural  
module are documented. These five programs are  
Program BLDG, Program FRAME, Program  
DOME, Program SILO, and Program SISOL.

(U)

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A010 632 15/3.1 9/2

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILLFacility Simulation Model for Advanced BMD  
Systems. Volume VI: Miscellaneous  
Module.

(U)

DESCRIPTIVE NOTE: Final rept.,

APR 75 83P Kao,A. ;Blackmon,R. ;

McDowell,E. ;

REPT. NO. CERL-TR-C-28

PROJ: DA-A-664717-D-895

TASK: 4-A-664717-D-89502

## UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: See also Volume IV B, AD-  
A009 748.

DESCRIPTORS: \*Antimissile defense systems,

\*Computerized simulation, Radar stations, Computer

programs, Costs

IDENTIFIERS: SITE computer program, OANDM computer

program

(U)

(U)

This module consists of four unrelated programs:  
Program SITE which includes the sitework, off-  
site utilities, and real estate program; Program  
DANDM, which includes the operation and maintenance  
cost programs; Program AETPH, which includes  
architectural, structural, electrical, mechanical,  
and power items cost; and Program VOLUME, which  
is the structure selection program. The first  
three programs are designed to be used either  
separately or in conjunction with other modules for  
estimating a total facility cost. The fourth  
program is independent and not to be used in  
conjunction with the other programs in the simulation  
model.

(U)

AD-A010 713

UNCLASSIFIED

PAGE 210

AD-A010 632

UNCLASSIFIED

099062

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A010 631 9/1

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILLEMP Evaluation of Junction Boxes, Junction-  
Box Covers, and Gaskets.

(U)

DESCRIPTIVE NOTE: Final rept.,

MAY 75 53P Leverenz, D. J. ; McCormack,

R. G. ; Nielsen, P. H. ;

REPT. NO. CERL-TR-C-18

PROJ: LAD-CE-CERL-72-20

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Junction boxes, \*Electromagnetic  
shielding, Electromagnetic pulses, Radio-frequency  
interference, Gaskets, Coverings, Radiation  
hardening

IDENTIFIERS: Evaluation

(U)  
(U)

This study reports test results from RFI testing  
of electrical junction boxes with bolt-on covers.  
A number of cover-gasket configurations were  
tested. Tests indicate that a large improvement in  
the shielding effectiveness of junction boxes can be  
obtained by increasing the number of cover bolts or  
using a Metex 'combo strip' gasket. A simple  
field fix that provides a large increase in shielding  
effectiveness can be made by doubling the number of  
cover bolts used on the junction boxes.

(U)

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A010 630 15/3

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILLExperimental Verification of Ventilation  
Analysis Procedure.

(U)

DESCRIPTIVE NOTE: Final rept.,

APR 75 43P Burns, John J. , Jr. ;

REPT. NO. CERL-TR-C-29

PROJ: LAD-CE-CERL-73-1

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Fallout shelters, \*Environmental  
engineering, \*Ventilation, Air flow, Model tests,  
Thermodynamics, Underground structures, Civil  
defense

(U)

This report represents the results of an experiment  
to verify the adequacy of a supplement to ER 1190-  
1-2 and TR 20 (Volume 3), the Technical  
Manual for Ventilation Analysis Procedure.

The purpose of the experiment was to predict the  
rate of induced air flow through a fallout shelter.  
The only applied force in the shelter is the  
sensible heat given off by its occupants. Induced  
air flows through three model chambers containing  
resistance heaters that simulated body heat air-flow  
speeds from 10 to 30 fpm were measured using  
thermistors. After demonstrating that the model  
test results would be similar to the flows expected  
in larger shelters of a similar geometry, test runs  
involving one and two chamber wall cutouts were  
conducted.

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AD-A010 631

UNCLASSIFIED

PAGE

211

AD-A010 630

UNCLASSIFIED

099062

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A010 629 20.1 13/2 13/13

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILLConstruction Noise: Specification,  
Control, Measurement, and Mitigation.

(U)

DESCRIPTIVE NOTE: Final rept.,

APR 75 B1P Schomer, P. D. ; Homans, B. ;

REPT. NO. CERL-TR-E-53

PROJ: DA-4-A-162121-A-896

TASK: 4-A-162121-A-89606

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Construction, \*Noise pollution,  
Construction equipment, Noise reduction, Acoustic  
measurement, Physiological effects, Specifications,  
Military requirements  
IDENTIFIERS: \*Noise levels, \*Noise abatement,  
Army Corps of Engineers

In recent years, noise from construction sites has  
been an increasing problem for the Corps of  
Engineers. This report introduces noise as a  
problem, how it affects man, and Army requirements  
for the prevention of excessive noise. With this  
background, sample specifications are prepared to  
control construction-site noise and the means  
established to monitor compliance. Finally,  
information is given on state and local noise  
regulations and on noise-mitigation techniques.

(U)

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A009 748 15/3.1 9/2

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILLFacility Simulation Model for Advanced BMD  
Systems, Volume IVB, Power Module.  
Program Reference Manual.

(U)

DESCRIPTIVE NOTE: Final rept.,

APR 75 49P Kao, A. ; Blackmon, R. ; Eng,

D. ; McDowell, E. ;

REPT. NO. CERL-TR-C-28-Vol-48

PROJ: DA-4-A-664717-D-895

TASK: 4-A-664717-D-89502

## UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: See also Volume 3A dated Apr 75,  
AD-A009 747.  
DESCRIPTORS: \*Antimissile defense systems, \*Hardened  
structures, \*Computerized simulation, Heating,  
Ventilation, Air Conditioning equipment,  
Facilities, Cost analysis, Underground facilities,  
Underground structures, User needs, Power  
equipment, Computer programming

(U)

The Power Module volume is divided into a  
user's manual, a program reference manual, and a  
program listing. In this program reference manual,  
the procedures for calculating the performance  
characteristics of five power systems are described.  
The five power systems are: diesel engine, gas-  
turbine engine, turbo-alternator, fuel cells, and  
batteries. Descriptions of computer programs for  
each system are also given.

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AD-A010 629

UNCLASSIFIED

PAGE

212

AD-A009 748

UNCLASSIFIED

099062

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A009 747 15/3.1 9/2

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILLFacility Simulation Model for Advanced BMD  
Systems, Volume IIIA, Structural Module:  
User's Manual.

(U)

DESCRIPTIVE NOTE: Final rept.,

APR 75 72P Mac.A. ;Blackmon,R. ;

McDowell,E. ;

REPT. NO. CERL-TR-C-28-Vol-3A

PROJ: DA-4-A-764717-D-895

TASK: 4-A-764717-D-89502

## UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: See also Volume 2C dated Apr 75,  
AD-A009 746, and Volume 4B dated Apr 75, AD-  
A009 748.DESCRIPTORS: \*Antimissile defense systems, \*Hardened  
structures, \*Computerized simulation, Heating,  
ventilation, Air conditioning equipment,  
facilities, Cost analysis, Underground facilities,  
Underground structures, User needs, Guided missile  
silo, Computer programming

(U)

This structural module volume is divided into a  
user's manual, a program reference manual, and a  
program listing. In this user's manual, the  
structural design module is characterized by five  
computer programs that classify structure types.  
Input formats are outlined for each type:  
aboveground rectangular, belowground rectangular,  
surface-flush silo, aboveground circular dome, and  
shock-isolation. Sample cost data are provided for  
each building element.

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AD-A009 747

UNCLASSIFIED

PAGE

213

AD-A009 746

UNCLASSIFIED

099062

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A009 746 15/3.1 9/2

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILLFacility Simulation Model for Advanced BMD  
Systems, Volume IIC, Executive Control  
Module: Program Listing.

(U)

DESCRIPTIVE NOTE: Final rept.,

APR 75 74P Mac.A. ;Blackmon,R. ;

McDowell,E. ;

REPT. NO. CERL-TR-C-28-Vol-2C

PROJ: DA-4-A-664717-D-895

TASK: 4-A-664717-D-89502

## UNCLASSIFIED REPORT

Availability: Available in microfiche only.

SUPPLEMENTARY NOTE: See also Volume 2B dated Apr 75,  
AD-A009 745, and Volume 3A dated Apr 75, AD-  
A009 747.

DESCRIPTORS: \*Antimissile defense systems, \*Hardened  
structures, \*Computerized simulation, Heating,  
ventilation, Air conditioning equipment,  
facilities, Cost analysis, Underground facilities,  
Underground structures, User needs, Computer  
programs, FORTRAN  
IDENTIFIERS: MAIN computer program, MAINMS  
computer program, MAINSTR computer program,  
MAINPWR computer program, INHVAC computer  
program

(U)

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This executive control module is divided into a  
user's manual, a program reference manual, and a  
program listing. In this program listing, the  
FORTRAN programs of five programs in the executive  
control module are documented. These five programs  
are Program MAIN, Program MAINMS, Program  
MAINSTR, Program MAINPWR, and Program  
INHVAC.

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A009 745 15/3.1 9/2

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILL

Facility Simulation Model for Advanced BMD  
Systems. Volume IIB. Executive Control  
Module: Program Reference Manual.

(U)

DESCRIPTIVE NOTE: Final rept.,

APR 75 22p Kao.A. :Blackmon,R. ;

McDowell,E. ;

REPT. NO. CERL-TR-C-28-Vol-2B

PROJ: DA-4-A-664717-D-895

TASK: 4-A-664717-D-89502

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: See also Volume 2A dated Apr 75,  
AD-A009 744, and Volume 2C dated Apr 75, AD-  
A009 746.

DESCRIPTORS: \*Antimissile defense systems, \*Hardened  
structures, \*Computerized simulation, Heating,  
ventilation, Air conditioning equipment,  
facilities, Cost analysis, Underground facilities,  
underground structures, User needs, Flow chart

(U)

This executive control module volume is divided  
into a user's manual, a program reference  
manual, programs for the simulation model in an  
Option II or III mode are described.  
Programs are divided into overlays in order to  
reduce the total amount of storage required during  
the execution of the model. Overlays are loaded  
into memory at zero, primary, and secondary  
levels.

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UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A009 744 15/3.1 9/2

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILL

Facility Simulation Model for Advanced BMD  
Systems. Volume IIA. Executive Control  
Module: User's Manual.

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DESCRIPTIVE NOTE: Final rept.,

APR 75 141P Kao.A. :Blackmon,R. ;

McDowell,E. ;

REPT. NO. CERL-TR-C-28-Vol-2A

PROJ: DA-4-A-664717-D-895

TASK: 4-A-664717-D-89502

UNCLASSIFIED REPORT

Availability: Available in microfiche only.  
SUPPLEMENTARY NOTE: See also Volume 1 dated Apr 75,  
AD-A009 743, and Volume 3 dated Apr 75, AD-A009  
745.

DESCRIPTORS: \*Antimissile defense systems, \*Hardened  
structures, \*Computerized simulation, Heating,  
ventilation, Air conditioning equipment,  
facilities, Cost analysis, Underground facilities,  
underground structures, User needs, Computer  
programming

(U)

This executive control module volume is divided  
into a user's manual, a program reference manual, and  
a program listing. In this user's manual, the  
operation of the simulation model in an Option II  
or III mode is described. Option II relates to  
structural shape and limiting the model to vary bay  
sizes; Option III relates to the establishment of  
requirements and the selection of the most economical  
structural shape. Options II and III cover  
three basic structural shapes: aboveground  
rectangular, belowground rectangular, and turret with  
belowground rectangular base structure.

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AD-A009 745

UNCLASSIFIED

PAGE

214

AD-A009 744

UNCLASSIFIED

099062

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099052

AD-A009 743 15/3.1 9/2

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILL

Facility Simulation Model for Advanced BMD  
Systems. Volume I. Executive Summary.

(U)

DESCRIPTIVE NOTE: Technical rept.,

APR 75 14P Kao, A. ; Blackmon, R. ;

McDowell, E. ;

REPT. NO. CERL-TR-C-28-Vol-1

PROJ: DA-4-A-664717-D-895

TASK: 4-A-664717-D-89502

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: See also Volume 2A dated Apr 75,

AD-A009 744.

DESCRIPTORS: \*Antimissile defense systems, \*Hardened  
structures, \*Computerized simulation, Heating,  
Ventilation, Air conditioning equipment,  
Facilities, Cost analysis, Underground facilities,  
Underground structures

(U)

This Executive Summary introduces the eight  
volumes of the facility simulation model study.  
The objective of the study is to provide an  
automated, computerized, facility conceptual design  
simulation technique and cost model for ballistic  
missile defense systems.

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A009 702 13/3 14/2

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILL

Rapid Testing of Fresh Concrete.

(U)

DESCRIPTIVE NOTE: Conference proceedings,

MAY 75 153P Howdysheill, Paul A. ;

REPT. NO. CERL-CP-M-128

UNCLASSIFIED REPORT

DESCRIPTORS: \*Concrete, \*Test methods, \*Meetings,  
Cements, Water, Electrical properties, Thermal  
conductivity, Microwaves, Measurement, X rays,  
Neutron activation, Nondestructive testing, Gamma  
rays, Test equipment

IDENTIFIERS: Neutron activation analysis

(U)

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IAC ACCESSION NUMBER: NT-010882

IAC DOCUMENT TYPE: NTIAC-MICROFICHE--

Quite a few methods have been recommended in the  
technical literature for the determination of the  
cement and water contents as well as the water/cement  
ratio of a fresh concrete. This paper discusses  
several of the published methods for determination of  
cement content, including the well-known Dunagan  
method and some of its variants, another mechanical  
method based on consistency measurements by two  
different techniques, and two physicochemical  
methods. Although drying is simplest method for  
determining water content it is not accurate enough.  
Other methods of estimating the water content  
include calculating the weight of the solids in the  
concrete, using chemical means; measuring the  
electrical resistance or capacitance, or the thermal  
conductivity or the microwave absorption; and  
performing repeated consistency tests. The methods  
suggested for determination of the water/cement ratio  
are measuring essentially the water content.

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IAC SUBJECT TERMS: N--(U)\*CONCRETE, \*TEST METHODS, WATER,  
THERMAL CONDUCTIVITY, MOISTURE CONTENT, ELECTRICAL  
RESISTANCE, MICROWAVES;

AD-A009 743

UNCLASSIFIED

PAGE

215

AD-A009 702

UNCLASSIFIED

099062

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A009 701 5/10 15/5

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILL

Survey of Soldiers' Attitudes Toward Troop  
Housing. Volume II.

(U)

DESCRIPTIVE NOTE: Final rept.,

APR 75 279P Brauer, Roger L. ;

REPT. NO. CERL-TR-D-29

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: See also Volume 1, AD-A009  
700.

DESCRIPTORS: \*Soldiers, \*Public opinion,  
Attitudes(Psychology), Barracks, Army  
personnel, Housing(Dwellings), Surveys,  
Questionnaires

IDENTIFIERS: All volunteer military services

(U)  
(U)

The purpose of this study was to determine what  
changes in the condition of barracks were most  
desirable to enlisted men, to document these  
attitudes, and to obtain some understanding of the  
responses. To attain these goals, a survey was  
conducted at six U.S. Army posts and included a  
sample of about 2000 men, which was considered  
representative of the enlisted Army population.  
The major instrument in the study was a  
questionnaire that was completed by all men in the  
sample. For some respondents, a brief slide  
presentation, an activity diary, and a personality  
inventory were used in support of the questionnaire.  
Two architects provided a professional comparison  
of several barracks at each location.

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AD-A009 701

UNCLASSIFIED

PAGE

216

AD-A009 700

UNCLASSIFIED

099062

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A009 700 5/10 15/5

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILL

Survey of Soldiers' Attitudes Toward Troop  
Housing. Volume I: Summary Report.

(U)

DESCRIPTIVE NOTE: Final rept.,

APR 75 28P Brauer, Roger L. ;

REPT. NO. CERL-TR-D-29

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: See also Volume 2, AD-A009  
701.

DESCRIPTORS: \*Soldiers, \*Public opinion,  
Attitudes(Psychology), Barracks, Army  
personnel, Housing(Dwellings), Surveys

IDENTIFIERS: All volunteer military services

(U)  
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The report summarizes the major results of a survey  
which identified how enlisted men view their barracks  
conditions, which conditions they would like to see  
changed, and how attitudes about barracks are  
affected by background demographic factors. The  
men's ratings on 145 conditions are presented,  
together with a ranking of how important it is to  
change each condition. Major differences in  
attitudes about barracks are shown to relate to  
number of persons per room and factors such as age,  
pay grade, and intent to re-enlist.  
Recommendations are made for using information from  
this study in improving present conditions in  
constructing new barracks, and in evaluating the  
effectiveness of improvements.

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UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A009 668 5/2 13/2

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILL

Development of the Environmental Technical  
Information System.

(U)

DESCRIPTIVE NOTE: Interim rept.,

APR 75 68P Webster, R. D. ; Welsh, R.

L. ; Jain, R. K. ;

REPT. NO. CERL-IR-E-52

PROJ: DA-4-A-762720-A-896

TASK: 4-A-762720-A-89601

UNCLASSIFIED REPORT

DESCRIPTORS: \*Information systems. \*Environments.  
Impact. Computers. Data processing. Legislation.  
Economics. Military facilities  
IDENTIFIERS: Environmental impact

(U)  
(U)

The report presents the research to date on the development and refinement of two computer-aided technical information systems that the Army can use in environmental assessments. The Computerized Environmental Legislative Data System (CELDS) catalogues abstracts of environmental laws and statutes by geographic scope and keyword designation. CELDS includes quantifiable and objective standards and report or permit requirements of all active laws or regulations that may concern the Army. CELDS is complete for six states and for areas of federal jurisdiction, and data for another ten states are currently being collected and analyzed. The system will eventually include all 50 states. The Economic Impact Forecast System (EIFS) uses census bureau information on over 360 counties to calculate environmental impacts for construction on 64 Army installations. EIFS predicts how the expenditure of federal construction dollars will affect local businesses, households, and governments in the areas of employment, personal income, total business volume, housing revenues, housing and business investments, and government expenses. EIFS uses export-based location quotient techniques as the basis for its predictions. The system will be expanded in the future to cover areas other than construction and to include additional regions.

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AD-A009 668

UNCLASSIFIED

PAGE

217

AD-A009 667

UNCLASSIFIED

099062

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A009 667 15/5 13/3

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILL

Problems, Repair Methods, Materials, and  
Equipment.

(U)

DESCRIPTIVE NOTE: Final rept.,

APR 75 34P Kanarowski, Stanley M. ;

REPT. NO. CERL-TR-M-60

PROJ: DA-4-A-062112-A-891

TASK: 4-A-062112-A-89104

UNCLASSIFIED REPORT

DESCRIPTORS: \*Shower facilities. \*Construction  
materials. Leakage (Fluid). Repair.  
Waterproofing. Military facilities

(U)

This study categorizes shower room leakage problems and presents an approach for locating water seepage sources. Repair methods or remedies are discussed as are repair materials and equipment, including plastic shower units. Manufacturers' addresses are also furnished.

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## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099052

AD-A009 522 13/13 5/3

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILLEstimating the Life Expectancy of  
Facilities.

(U)

DESCRIPTIVE NOTE: Final rept.,

APR 74 52P Kirby, Jeffrey G. ; Grgas,

John M. ;

REPT. NO. CERL-TR-P-36

PROJ: DA-4-DW-728012-AOK-1

TASK: 4-DW-728012-AOK-102

UNCLASSIFIED REPORT

DESCRIPTORS: \*Buildings, \*Life expectancy, Cost  
estimates, Mathematical models, Statistical  
analysis, Markov processes  
IDENTIFIERS: Economic analysis

(U)  
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This technical report presents a model which  
predicts the expected remaining life of a building.  
Procedures for use of the model are described.

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## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A008 997 13/3

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILLWaterproofing Materials for Prevention of  
Windblown Rain Penetration through Masonry  
Walls.

(U)

DESCRIPTIVE NOTE: Final rept.,

APR 75 47P Kanarowski, Stanley M. ;

REPT. NO. CERL-TR-M-75

PROJ: DA-4-A-062112-A-891

TASK: DA-4-A-062112-A-89104

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: Report on Waterproofing Concrete  
and Masonry Military Facilities.  
DESCRIPTORS: \*Waterproofing, \*Buildings, \*Masonry,  
Maintenance, Formulations, Rain

(U)

This report outlines the basic factors contributing  
to water seepage in buildings and presents the  
results of a field study. Basic information,  
including manufacturer's recommended use, is given  
for 272 masonry repair and waterproofing materials.  
Pertinent federal and ASTM waterproofing-related  
specifications are identified, and manufacturers are  
listed.

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AD-A009 522

UNCLASSIFIED

PAGE

218

AD-A008 997

UNCLASSIFIED

099062

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A008 996 13/2 13/5

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILLFailure Analysis of Tainter Gate Cable-  
Adjusting Bolts.

(U)

DESCRIPTIVE NOTE: Final rept.,  
APR 75 28p Aleszka, James ;  
REPT. NO. CERL-TR-M-120

## UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: Report on Corrosion Mitigation in  
Civil Works Projects.

DESCRIPTORS: \*Dams, \*Waterways, \*Closures,  
\*Risks, \*Failure, Ohio River, Heat treatment,  
Corrosion resistance, Kentucky

(U)

IDENTIFIERS: Uniontown Dam, Uniontown Locks,  
Uniontown(Kentucky), Failure analysis,  
Locks(Waterways), Check structures

(U)

The failure of cable-adjusting bolts on the  
Tainter gates at the Uniontown, KY, Locks and  
Dam is analyzed. The bolts were found to be  
embrittled as a result of improper heat treatment.  
This condition caused a loss in corrosion  
resistance and toughness, allowing stress corrosion  
cracks to develop in the bolts. Cavitation erosion  
pits were found at the site of some of this cracking.  
Corrective measures are recommended to restore the  
corrosion resistance and toughness of the embrittled  
bolts.

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AD-A008 996

UNCLASSIFIED

PAGE 219

AD-A008 988

UNCLASSIFIED

099062

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A008 988 13/2 15/5

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILL

Computer-Aided Environmental Impact  
Analysis for Construction Activities: User  
Manual.

(U)

DESCRIPTIVE NOTE: Technical rept.,  
MAR 75 83p Urban, L. V. ; Balbach, M.  
E. ; Jain, R. K. ; Novak, E. W. ; Riggins, R.  
E. ;

REPT. NO. CERL-TR-E-50

PROJ: DA-4-A-1621-A-896

TASK: 4-A-1621-A-89601

## UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: Report on Procedures for  
Evaluating Environmental Impacts of All Army  
Military Programs.

(U)

DESCRIPTORS: \*Environmental protection,  
\*Construction, \*Military applications, Instruction  
manuals, Methodology, Pollution, Wildlife, Land  
use, Computer applications, Data processing  
IDENTIFIERS: \*Environmental impact statements,  
Environmental Impact Computer System

(U)

The document is a manual designed to help Army  
personnel assess construction activities for  
preparation and review of Environmental Impact  
Assessments (EIA) and Environmental Impact  
Statements (EIS) by means of the Environmental  
Impact Computer System (EICS). This system  
has been developed and maintained by the U.S.  
Army Construction Engineering Research  
Laboratory (CERL).

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099052

AD-A007 742 13/3

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILL

An Evaluation of the Fracture of Plain  
Concrete, Fibrous Concrete, and Mortar  
Using the Scanning Electron Microscope.

(U)

DESCRIPTIVE NOTE: Final rept.,

MAR 75 67P Aleszka, James ;Schnittgrund,

Gary ;

REPT. NO. CERL-TR-M-122

PROJ: DA-4-A-161102-B-52-E

TASK: 4-A-161102-B-52-E-09

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: Report on Characterization of  
Fracture of Engineering Materials.

DESCRIPTORS: \*Concrete, \*Mortars,  
\*Fracture(Mechanics), Fiber reinforced  
composites, Electron microscopy, Hydration,  
Tensile properties, Compressive properties,  
Flexural properties, Gels, Calcium compounds,  
Reinforced concrete

(U)

IDENTIFIERS: Scanning electron microscopy, Steel  
fibers, Ettringite, \*Fiber reinforced  
concretes

(U)

The fracture surfaces of both plain and fiber-  
reinforced mortar and concrete are analyzed using the  
scanning electron microscope (SEM). Proper  
sample preparation techniques for SEM examination  
of mortar and concrete are discussed. Fracture  
surfaces of samples broken in splitting tensile,  
flexure, and compression tests are compared using  
SEM photomicrographs. Micromechanisms of failure  
are discussed for the different lists for samples  
cured 7, 14, 21, and 28 days.

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UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A007 741 5/11 15/5

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILL

Army Family Housing: Preferences and  
Attitudes about Housing Interiors. Volume  
II. Preferences.

(U)

DESCRIPTIVE NOTE: Final rept.,

MAR 75 85P Dresel, D. L. ;Brauer, R.

L. ;Neathammer, R. D. ;Hahn, C. B. ;Bonham,

R. S. ;

REPT. NO. CERL-TR-D-48-Vol-2

PROJ: DA-4-A-664-P-17895

TASK: DA-4-A-664-P-1789503

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: See also report dated Feb 75, AD-  
A007 133.

DESCRIPTORS: \*Housing(Dwellings), \*Military  
personnel, \*Attitudes(Psychology), Surveys,  
Windows, Floors, Washers(Cleaners),  
Questionnaires

(U)

The report is the second volume of a three-volume  
study on Army family housing occupants' preferences  
and attitudes about housing interiors. Preferences  
for interior features are summarized, with listings  
of the specific issues and explanations of the  
differences in opinion among occupants at the 12  
survey installations.

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AD-A007 742

UNCLASSIFIED

PAGE

220

AD-A007 741

UNCLASSIFIED

099062

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A007 152 1/5

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILLPavement Functional Condition  
Indicators. (U)

DESCRIPTIVE NOTE: Final rept.,

FEB 75 96P Shahin, Mohamed Y. ;Darter,

Michael I. ;

REPT. NO. CERL-TR-C-15

PROJ: DA-4-A-664717-D-895

TASK: 4-A-664717-D-89504

## UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: Report on Condition Indicators for  
Military Pavements.

DESCRIPTORS: \*Pavements, \*Runways, \*Skidding,

Military facilities, Performance(Engineering),

Roughness, Slope, Test methods, Indicators,

State of the art, Friction, Measurement,

Acceptability

IDENTIFIERS: Service life (U)

Functional performance is defined as the trend of the level of service provided to the pavement users through the initial life of the pavement and between major rehabilitations. The information presented in this report includes: (1) Identification of pavement functional condition indicators; (2) state of the art of measuring and evaluating the most significant functional indicators (roughness and skid resistance); and (3) preliminary concepts for incorporating functional consideration into pavement life-cycle analysis. The report covers pavements in general, with special consideration given to airfields. (U)

AD-A007 152

UNCLASSIFIED

PAGE

221

AD-A007 133

UNCLASSIFIED

099062

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A007 133 5/11 13/13 15/5

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILL

Army Family Housing: Preferences and  
Attitudes About Housing Interiors. Volume  
I. Methodology and General Results.  
Preferences of Occupants in Military Family  
Housing. (U)

DESCRIPTIVE NOTE: Final rept.,

FEB 75 67P Dresel, D. L. ;Brauer, R.

L. ;Neathammer, R. D. ;Hahn, C. B. ;Gorham,

R. S. ;

REPT. NO. CERL-TR-D-48

PROJ: DA-4-A-664-P-17895

TASK: 4-A-664-P-1789503

## UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: See also report dated Apr 74, AD-  
777 769.

DESCRIPTORS: \*Housing(Dwellings), \*Military  
personnel, Surveys, Questionnaires, Data  
processing

IDENTIFIERS: Interior decorating (U)

The report is the first volume of a three-volume study on Army family housing occupants' preferences and attitudes about housing interiors. The methodology and general results of a survey of occupants of military family housing are discussed. Also presented are the survey design, the data-gathering process, and an analysis of questionnaires. (U)

AD-A007 152

UNCLASSIFIED

PAGE

221

AD-A007 133

UNCLASSIFIED

099062

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 99062

AD-A006 495 15/5 5/1

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILLEvaluation System for Proposed Theater of  
Operations Structures. Volume II.  
Technical Report.

(U)

DESCRIPTIVE NOTE: Final rept.,

JAN 75 10SP Ryan, T. C. ;

REPT. NO. CERL-TR-C-14-Vol-2

PROJ: DA-4-A-764717-D-895

TASK: 4-A-764717-D-89523

## UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: See also Volume I, AD/A-006  
014.

DESCRIPTORS: \*Military facilities, \*Military  
engineering, \*Logistics planning, Buildings,  
Mechanical components, Maintainability, Packaging,  
Management information systems, Containerizing,  
Transportable, Relocation, Loads(Forces),  
Automation, Construction equipment, Benefits,  
Costs, Reviews, Manuals  
IDENTIFIERS: \*Theater of operations, Scenarios,  
Furniture, Utilities, Recommendations

(U)

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This report, the second volume in a four-volume  
study, presents an evaluation system for proposed  
theater of operations structures. It includes a  
methodology for producing the system, an evaluator's  
manual, a building system data form, a scenario data  
form, a summary of survey results, and a glossary.  
A manual and automated procedure are included for  
giving an overall value rating to a proposed building  
system for a particular theater of operations.

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AD-A006 495

UNCLASSIFIED

PAGE

222

AD-A006 241

UNCLASSIFIED

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## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A006 241 13/2

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILLHandbook for Environmental Impact  
Analysis.

(U)

DESCRIPTIVE NOTE: Final rept.,

SEP 74 215P

Jain, R. K. ; Urban, L. V.

; Stacey, G. S. ;

REPT. NO. CERL-TR-E-59

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Environmental protection, \*Handbooks,  
Assessment, Instructions, Law, Requirements,  
Decision making, Army operations, Construction,  
Maintenance, Army training, Army planning, Army  
research, Processing  
IDENTIFIERS: \*Environmental impact assessments,  
National Environmental Policy Act 1969,  
\*Environmental impact statements, Environmental  
surveys

(U)

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The handbook presents recommended procedures for  
use by Army personnel in the preparation and  
processing of environmental impact assessments  
(EIA) and statements (EIS). The procedures  
outline in step-by-step fashion the progressive  
actions necessary to satisfy the requirements of the  
National Environmental Policy Act of 1969 and  
the subsequent guidelines issued by the President's  
Council on Environmental Quality (CEQ)  
changing all federal agencies to utilize a systematic  
and interdisciplinary approach to incorporate  
environmental considerations into their decision-  
making process.

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## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A006 145 15/5 5/1 9/2

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILLEvaluation System for Proposed Theater of  
Operations Structures. Volume III: User's  
Manual.

(U)

DESCRIPTIVE NOTE: Final rept.,

JAN 75 66P Ryan, T. C. ; Tietz, L. C.

;

REPT. NO. CERL-TR-C-14-Vol-3

PROJ: DA-4-A-764717-D-895

TASK: 4-A-764717-D-89523

## UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: See also Volume 1, AD/A-006  
014.DESCRIPTORS: \*Military facilities, \*Military  
engineering, \*Computer applications, Management  
information systems, Logistics planning, Buildings,  
Computer programs, Data processing, Automation,  
Systems engineering, Management planning and  
control, Problem solving, Reviews, Construction  
IDENTIFIERS: TOBSEP(Theater of Operations  
Building System Evaluation Procedure),  
Theater of operations building system evaluation  
procedure, Alternatives, TOBSEP computer program,  
Evaluation, Scenarios

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The TOBSEP (Theater of Operations Building  
System Evaluation Procedure) computer program  
allows the user to evaluate structures for potential  
use in the theater of operations. The instructions  
and program command language are presented in his  
volume--the third in a four-volume study. With the  
information contained herein, the program user can  
establish a building system data base for evaluating  
a wide range of alternative systems.

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## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A006 015 13/2 8/13

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILLLoad-Deflection Behavior of Lime-Stabilized  
Layers.

(U)

DESCRIPTIVE NOTE: Final rept.,

JAN 75 59P Suddath, L. P. ; Thompson, M.

R. ;

REPT. NO. CERL-TR-W-118

PROJ: DA-4-A-664717-D-895

TASK: 4-A-664717-D-89504

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Pavements, \*Soil stabilization,  
Construction materials, Soils, Compressive  
properties, Flexural strength, Dynamic loads,  
Deflection

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IDENTIFIERS: \*Pavement layers, Soil lime  
mixtures

(U)

The static and dynamic load-deflection response of  
soil-lime pavement layers was investigated. Soil-  
lime mixture layers 6, 9, and 12 in. thick were  
compacted over a stiff subgrade (k=450 psi/in.)  
and a soft subgrade (k=50 psi/in.). The soil-  
lime layers were statically and dynamically loaded  
after curing periods of 2, 14, 28, and 56 days.  
Supplemental subgrade soil and soil-lime mixture  
property data were also developed. The load-  
deflection data are summarized and analyzed.  
Various pavement behavior theories are evaluated to  
determine their capability to predict the load-  
deflection behavior of soil-lime pavement layers.

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AD-A006 145

UNCLASSIFIED

PAGE

223

AD-A006 015

UNCLASSIFIED

099062

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099052

AD-A006 014 15/5 5/1

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILLEvaluation System for Proposed Theater of  
Operations Structures. Volume I. Executive  
Summary.

(U)

DESCRIPTIVE NOTE: Final rept.,

JAN 75 9p Tietz, L. ;

REPT. NO. CERL-TR-C-14

PROJ: DA-4-A-764717-D-895

TASK: 4-A-764717-D-89523

UNCLASSIFIED REPORT

DESCRIPTORS: \*Military facilities, \*Military engineering, \*Logistics planning, Operations research, Buildings, Computer applications, Systems engineering, Mechanical engineering, Maintainability, Mobility, Containerizing, Construction, Materials, Structural properties, Environments, Costs

IDENTIFIERS: \*Theater of operations, Scenarios

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This Executive Summary, the first volume in a four-volume military construction study, introduces the other volumes of the Evaluation Model. The objective of this study is to develop and validate a procedure for identifying and evaluating building systems for potential theater of operations use. A computerized version of the evaluation process has been provided.

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AD-A006 014

UNCLASSIFIED

PAGE

224

AD-A005 576

UNCLASSIFIED

099062

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A005 576 13/3 7/4 14/2

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILLEvaluation of a Chemical Technique to  
Determine Water and Cement Content of Fresh  
Concrete.

(U)

DESCRIPTIVE NOTE: Final rept.,

JAN 75 32p Howdysheill, P. A. ;

REPT. NO. CERL-TM-M-119

PROJ: DA-4-A-762719-AT-05

TASK: 4-A-762719-AT-0503

UNCLASSIFIED REPORT

DESCRIPTORS: \*Concrete, Field tests, Water, Cements, Volumetric analysis, Quality control, Compressive properties, Sampling, Photometry

IDENTIFIERS: Flame photometry

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This report presents information obtained from an evaluation of a chemical procedure for determining the water and cement content of a concrete in the plastic state. The procedure uses chloride ion titration to determine water content, and flame photometry (calcium signature) to determine cement content. This study evaluated the procedure to determine if it could be used to estimate concrete strength potential and to define to what extent test results are influenced by aggregate type, aggregate moisture conditions, aggregate absorption capacity, concrete mix proportions, mix time, and time of sampling. The field worthiness of the system was also evaluated.

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AD-A006 014

UNCLASSIFIED

PAGE

224

AD-A005 576

UNCLASSIFIED

099062



UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A005 046 13/13 20/11

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILL

Inflation Forming of Steel Fiber-Reinforced  
Concrete Domes.

(U)

DESCRIPTIVE NOTE: Interim rept.,

DEC 74 23P Batson, Gordon B. ;

REPT. NO. CERL-IR-M-115

PROJ: DA-4-A-764717-D-895

UNCLASSIFIED REPORT

DESCRIPTORS: \*Domes (Structural forms),  
\*Reinforced concrete, \*Inflatable structures,  
Shells (Structural forms), Fiber reinforcement,  
Stress testing, Loads (Forces)  
IDENTIFIERS: Reinforcing steels, Finite element  
analysis

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Inflation forming steel fiber-reinforced concrete  
shell structures suitable for shelters and  
fortification is shown to be a viable construction  
method. The technique of construction is based on  
experience gained building a series of 9-foot  
diameter domes of variable thicknesses. The  
preliminary stress analysis for a 28-foot diameter  
dome of variable thickness using a finite element  
method shows that the steel-fiber concrete is not  
highly stressed for the loads and boundary conditions  
investigated. The buckling analysis was not  
completed in time to be included in this report:  
preliminary values are presented.

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A005 045 7/1

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILL

Comparative Evaluation of Military and  
Commercial Ammonia Oxidation Plants Using  
the Pressure Process.

(U)

DEC 74 75P Carter, Roy V. ;

REPT. NO. CERL-TR-E-63

UNCLASSIFIED REPORT

DESCRIPTORS: \*Ammonia, \*Oxidation, Nitric acid,  
Industrial plants, Manufacturing, Chemical  
industry  
IDENTIFIERS: \*Nitric acid plants, Chemical plants,  
Design

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Military and commercially owned weak nitric acid  
manufacturing facilities using the ammonia oxidation  
process were surveyed to determine their  
similarities. Based on survey data, descriptions  
of the operations and design characteristics of 10  
installations are presented. It was found that no  
significant differences exist among the ammonia  
oxidation processes.

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AD-A005 046

UNCLASSIFIED

PAGE

225

AD-A005 045

UNCLASSIFIED

099062

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099052

AD-A004 001 13/5 11/6

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILLEffects of Cluster Porosity on the Tensile  
Properties of Butt-Weldments in T-1  
Steel.

(U)

DESCRIPTIVE NOTE: Technical rept.,

NOV 74 32P Honig, E. M., Jr;

REPT. NO. CERL-TR-M-109

PROJ: CERL-OK-1

TASK: OK-1-02

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Steel, \*Weldments, Butt welding,  
Welds, High strength alloys, Porosity, Tensile  
properties  
IDENTIFIERS: High strength steels, Steel A-  
517

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The effects of cluster porosity on the tensile properties of T-1 steel butt-weldments were assessed in a program consisting of three phases of experimentation. In the first phase, cluster porosity was expressed as a percentage of the total cross section. In the second phase, cluster porosity was measured both in terms of the actual total area of pores and the area of the cluster (including metal ligaments, or webs, that connect pores). These two phases showed that the tensile strength of the welded metal is not significantly reduced if the area of pores and the cluster area are below critical sizes; however, ductility is rapidly reduced until these sizes are reached. The third phase established a partial correlation between cluster porosity size and the length of a center-crack in a plate. The J integral concept of fracture mechanics was used to examine the existence of a critical value of the J integral with which the critical pore area size (or other measure of cluster porosity) could be correlated.

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AD-A004 001

UNCLASSIFIED

PAGE

226

UNCLASSIFIED

099052

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A003 992 13/8 14/2

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILLApplication of Acoustic Emission to Weld  
Monitoring.

(U)

DESCRIPTIVE NOTE: Interim rept.,

DEC 74 17P Kumar, A.;

REPT. NO. CERL-IR-M-117

PROJ: DA-4-A-162121-A-891

TASK: 4-A-162121-A-89103

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Nondestructive testing, \*Gas metal arc  
welding, Monitoring, Acoustic emissions, Acoustic  
waves, Real time, Welds, Feasibility studies,  
Cracks, Porosity, Defects (Materials),  
Steel

(U)

IAC ACCESSION NUMBER: MCIC-093073 NT-009378

IAC DOCUMENT TYPE: MCIC -HARD COPY-- NTIAC -

## MICROFICHE--

The report discusses the feasibility of applying acoustic emission to real-time monitoring of gas metal arc welding. A state-of-the-art survey indicated that investigators had some success with detecting cracks, porosity, and slag inclusion during the welding of steels by monitoring acoustic emission. The presence of cracks was most easily detected in gas tungsten arc welding of stainless steels. Slag inclusions associated with roped bead in submerged arc welding can also be detected by acoustic emission. In the present work, cracks were introduced in a restrained weldment by hydrogen additions to the shielding gas. Selective filtering was used to increase the signal-to-noise ratio. Results show that the acoustic emission rate from cracks is much higher than that from the welding arc noise. A real-time weld monitor for detection of cracks in steel is therefore technically feasible. However, when porosity was introduced, the acoustic emission rate was about the same order as that from the welding arc noise. Thus, porosity could not be detected by the acoustic emission in a real-time weld monitoring situation.

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IAC SUBJECT TERMS: N--(U)\*ACOUSTIC EMISSIONS, \*WELDS,  
\*DEFECTS (MATERIALS), FEASIBILITY STUDIES, STATE-OF-THE-ART  
AD-A003 992

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099052

AD-A003 991 13/13 5/1

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILLSignificance Ranking of Changes in the  
Building Industry.

(U)

DESCRIPTIVE NOTE: Final rept.,

DEC 74 30P Prod. Omar E. , Jr.; Mohl,

Roger ;

REPT. NO. CERL-TR-2-31

PROJ: DA-4-A-162121-A-891

TASK: 4-A-162121-A-89101

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Construction, \*Industrial research,  
\*Forecasting, \*Technology, Reviews, Delphi  
techniques, Management planning and control,  
Optimization, Questionnaires, Industrial relations,  
Factor analysis  
IDENTIFIERS: CHANGE. Recommendations

The report presents an example of a modified  
'delphi' technique of technological forecasting.  
Governmental experts involved in the planning of  
construction were polled to ascertain those changes  
in the construction industry which have the most  
potential for impact. Results of the survey  
identified areas of most concern to government and  
thus the areas where future forecasting can be most  
beneficial to planners.

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AD-A003 991

UNCLASSIFIED

PAGE

227

AD-A003 833

UNCLASSIFIED

099062

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A003 833 13/3 15/5

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILLThe Impact of Materials Shortages on  
Military Construction.

(U)

DESCRIPTIVE NOTE: Final technical rept.,

NOV 74 35P Howdysheil, Paul ;

REPT. NO. CERL-TR-M-106

PROJ: DA-4-A-162121-A-891

TASK: 4-A-162121-A-89101

## UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: Report on Engineering Studies and  
Investigations.  
DESCRIPTORS: \*Construction materials, \*Military  
facilities, \*Inflation (Economics), Forecasting,  
Construction, Military applications, Flexible  
structures, Logistics planning  
IDENTIFIERS: \*Logistics management

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The report addresses the impact of material  
shortages on present and future military construction  
and suggests means and techniques of alleviating the  
impact. The report includes (1) a description  
of current and future material shortages, (2) a  
discussion of military construction as it relates to  
total U.S. construction, (3) an assessment of  
the impact of material shortages on military  
construction, and (4) recommended measures for  
reducing this impact.

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A003 828

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN

Method of Designing Systems for Airfield Pavements.

(U)

DESCRIPTIVE NOTE: Technical report, NOV 74, 218P. Cedergren, Harry R. ; REPT. NO. CER-18-C-13. PROJ: DA-A-64717-D-895. TASK: 4-A-64717-D-8954.

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: Report on Systems Approach to Designing Airfield Pavements. (U)

This report presents the findings of a study performed to review the methodology and evaluate the effectiveness of design systems for airfield pavements. Official System Evaluation and Contract Review Report were reviewed for military bases in Continental United States and a number of foreign countries; a number of airfields in the United States were inspected (some with waterways experiment station team) and test holes were drilled into heavy-duty pavement at three airfields. The testing consisted of measuring the in-place permeabilities of base and subgrade materials, and recording the saturation levels within pavements in relation to rainfall events. At a fourth field investigation site, discharges from pipes to a 'comprehensive underdrainage system' were measured in relation to rainfall events, to develop the time-lag characteristics of the drainage system. (U)

AD-A003 828

UNCLASSIFIED

PAGE

228

AD-A003 237

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099062

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A003 237

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN

Method of Designing Systems for Airfield Pavements.

(U)

DESCRIPTIVE NOTE: Technical report, NOV 74, 218P. Cedergren, Harry R. ; REPT. NO. CER-18-C-13. PROJ: DA-A-64717-D-895. TASK: 4-A-64717-D-8954.

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: Report on Systems Approach to Designing Airfield Pavements. (U)

This report presents the findings of a study performed to review the methodology and evaluate the effectiveness of design systems for airfield pavements. Official System Evaluation and Contract Review Report were reviewed for military bases in Continental United States and a number of foreign countries; a number of airfields in the United States were inspected (some with waterways experiment station team) and test holes were drilled into heavy-duty pavement at three airfields. The testing consisted of measuring the in-place permeabilities of base and subgrade materials, and recording the saturation levels within pavements in relation to rainfall events. At a fourth field investigation site, discharges from pipes to a 'comprehensive underdrainage system' were measured in relation to rainfall events, to develop the time-lag characteristics of the drainage system. (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A001 616

5/2

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILL

An Evaluation of Architectural Information  
Systems.

(U)

DESCRIPTIVE NOTE: Interim rept. Jan-Mar 72,  
OCT 74 174P Lane, N. D. ;  
REPT. NO. CERL-IR-0-41  
CONTRACT: DAC88-73-M-0633  
PROJ: DA-4-A-162121-A-891  
TASK: 4-A-162121-A-89107

UNCLASSIFIED REPORT

DESCRIPTORS: \*Information systems. \*Architecture,  
\*Military facilities, Data processing, Computer  
programming, Human factors engineering, Buildings,  
Subject indexing

(U)

The report describes the basic components of an information system, those operations necessary for the storage, organization, and access to documents and the information contained within the documents. Concentration has been aimed primarily at the access process, which seems to be of greatest concern to CERL. The types of access which have been identified include indexing by subject heading, indexing by keywords-in-context, coordinative indexing, and the issue-based approach. Hierarchical classification, also of concern to CERL, has been identified as part of the organizational process, although its role in access is discussed briefly. Syntactic analysis is discussed as it applies to the other indexing systems, primarily as a modification of the keyword-in-context index, the automated subject heading index, and indirectly as the 'role' function in the coordinate index. The relational sentence concept, a preliminary approach proposed by CERL, is also reviewed and discussed.

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A000 711

15/5

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILL

Comparative Study of Consumer Attitudes at  
Three Air Force Dining Facilities.

(U)

DESCRIPTIVE NOTE: Final rept.,  
SEP 74 37P Gibbs, Wes ;  
REPT. NO. CERL-IR-D-40  
PROJ: DA-1-J-662713-AJA-5

UNCLASSIFIED REPORT

DESCRIPTORS: \*Dining halls, \*Food dispensing,  
Acceptability, Consumers, User needs, Air  
Force facilities, Questionnaires, Surveys

(U)

An environmental design research study was conducted in dining facilities at three Air Force bases to determine if the results and conclusions of previous studies are applicable to the entire Air Force food service system. The investigation reported here was to determine if consumers' ratings of an ideal dining environment are consistent throughout the system. In this study 355 enlisted Air Force personnel completed the environmental evaluation survey, which included a measure of an ideal dining environment. Their ratings of an ideal dining environment were compared statistically across bases as a direct test of the hypothesis that differences in geographic location, climatic conditions, state of existing dining environment, and base mission would not significantly affect consumer attitudes about an ideal dining environment.

(U)

(Modified author abstract)

AD-A001 616

UNCLASSIFIED

PAGE

229

AD-A000 711

UNCLASSIFIED

099062

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD-A000 710 5/2

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILL

Development of the Military Construction Data  
System (MCDs). Part I. (U)

DESCRIPTIVE NOTE: Final report.

SEP 74 85P Lee, Esther K. C. ;Britsky,

M. A. ;

REPT. NO. CERL-TR-P-26

PROJ: DA-4-A-162121-A-891

UNCLASSIFIED REPORT

DESCRIPTORS: \*Information systems, \*Construction,  
Engineering, Military facilities, Costs, Life  
cycles, Maintenance, Medical equipment, Integrated  
systems, Reliability, Compatibility, Computer  
programming, Data management (U)  
IDENTIFIERS: MCDs(Military Construction Data  
System), Military construction data system (U)

The report discusses the interrelationships of  
projects involving data-gathering and data-processing  
that are currently being developed at the U.S.

Army Construction Engineering Research

Laboratory (CERL) and lists the common data

elements from these projects. Also examined is the

Military Construction Data System (MCDs)

Data Dictionary/Directory Model-its

functions, data base structure, encoding and loading

techniques, input/output retrieval commands, and

updating methods-and sample retrievals. Finally, a

data base management package evaluation scheme is

presented, through which a data base management

package developed by the Defense Intelligence

Agency (DIA), called the MIDMS, was examined

and selected as the most efficient implementation of

the MCDs data bases. (Author) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

REFERRAL 990 800

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILL

ARMY CORPS OF ENGINEERS, BOX 4005,  
CHAMPAIGN, ILLINOIS 61820. TELEPHONE: AC  
217-352-6511, FTS 958-7011

MAR 80

DIRECTOR AND/OR CONTACTS:

CIRCEO, LOUIS J., COL CE, CDR/DIR: BROWN

ROGER J., LTC CE, DEP CDR/DIR: I

CONTROLLING ORGANIZATION/TYPE OF SOURCE: U MY,  
LABORATORY

AVAILABILITY/SERVICE CHARGES: DOD AND OTHER US GOV'T.  
AGENCIES, THEIR AUTHORIZED AND QUALIFIED CONTRACTORS,  
EDUCATIONAL INSTITUTIONS AND PRIVATE CITIZENS. SUBMIT  
WRITTEN REQUEST FOR SERVICE.

SIZE OF COLLECTION AND/OR SPECIAL COLLECTIONS:

SPECIAL COLLECTION OF CONSTRUCTION ENGINEERING

RESEARCH LAB AND MANY CORPS OF ENGINEERS OHIO

RIVER DIVISION LAB REPORTS.

DESCRIPTORS: \*CONSTRUCTION, \*MANAGEMENT, \*CIVIL

ENGINEERING, \*ENVIRONMENTAL ENGINEERING, \*ENERGY,

SYSTEMS ENGINEERING, CONSTRUCTION MATERIALS,

POLLUTION, ENVIRONMENTS, STRUCTURES, PAVEMENTS

SERVICES/MATERIALS: TYPES OF SERVICES, TECHNICAL ANSWERS,

REFERRAL, LOANS(INTERLIBRARY)

PUBLICATIONS: THE LABORATORY'S TECHNICAL REPORTS ARE

AVAILABLE THROUGH DTIC AND NTIS. A QUARTERLY

NEWSLETTER, 'CERL REPORTS' IS AVAILABLE FREE FROM THE

LABORATORY.

ANNOTATION: THE ARMY CONSTRUCTION ENGINEERING

RESEARCH LABORATORY, PO BOX 4005, CHAMPAIGN, IL

SPECIALIZES IN CONSTRUCTION MANAGEMENT, FACILITY

AND INSTALLATION DESIGN AND PLANNING, OPERATION

AND MAINTENANCE OF FACILITIES, CONSTRUCTION,

FACILITY DEMOLITION AND DISPOSAL, ENVIRONMENTAL

IMPACT OF ARMY ACTIVITIES, AIR, WATER AND

NOISE POLLUTION.

AD-A000 710

UNCLASSIFIED

PAGE

230

UNCLASSIFIED

099062

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099052

AD- 907 397L 13/2 14/2 8/13

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILLNondestructive Testing of Concrete  
Pavements: Equipment Evaluation.

(U)

DESCRIPTIVE NOTE: Technical rept.,

JAN 73 39p Geswein, Allen J. ; Rice,

John L. ; CERL-TR-S-12

PROJ: DA-891

TASK: R9106

UNCLASSIFIED REPORT

Distribution limited to U.S. Gov't. agencies only;  
Test and Evaluation: Jan 73. Other requests for  
this document must be referred to Office of the Chief  
of Engineers (Army). Attn: DAEN-MCE-D.  
Washington, D. C. 20314.

DESCRIPTORS: (\*PAVEMENTS, NONDESTRUCTIVE TESTING),  
(\*LANDING FIELDS, CONCRETE), (\*LOADS(FORCES)), \*TEST  
EQUIPMENT, RUNWAYS, THICKNESS, TEST EQUIPMENT,  
PERFORMANCE(ENGINEERING), ACCEPTABILITY, FREQUENCY,  
VELOCITY, BAND PASS FILTERS, DEFLECTION, ACCURACY, DATA,  
ANALYSIS, SOIL MECHANICS  
(U)  
(U)

IDENTIFIERS: DYNAFLECT MACHINE

IAC ACCESSION NUMBER: NT-007404

IAC DOCUMENT TYPE: NTIAC -MICROFICHE--

This report presents the findings of an equipment  
evaluation study performed to assess the ability of  
the Dynaflect testing device to non-destructively  
evaluate rigid airfield pavements. The Dynaflect  
is designed to apply to the pavement a sinusoidal  
dynamic load with a peak-to-peak value of 1000 lb at  
a single frequency of 8 Hz. An array of 320phones  
attached to the device senses the vertical velocity  
of the pavement, which is processed through a narrow  
band filter and integrated electronically to obtain  
deflection. The testing program consisted of  
collection of Dynaflect test results over a broad  
range of airfield pavement thicknesses, subgrade  
types and moduli, climatic conditions and geographic  
locales. These data were analyzed, then compared  
with the actual strength and thickness parameters of  
the various pavement structures to assess the  
accuracy of the Dynaflect's performance.  
(U)

IAC SUBJECT TERMS: N--(U)\*CONCRETE, \*PAVEMENTS, \*TEST  
AD- 907 397L

UNCLASSIFIED

PAGE

231

AD- 894 873L

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099062

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD- 894 873L 13/2

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILL

Study of Causes of Pavement Deterioration.  
Investigation of Techniques and/or Methods to  
Retard 'D' Line Cracking in PCC Pavements  
and Structures.

(U)

DESCRIPTIVE NOTE: Technical rept. Feb 68-Sep 71,

APR 72 30P Edwards, E. E. ;

PROJ: AF-5224

TASK: 522401

MONITOR: AFWL TR-71-141

UNCLASSIFIED REPORT

Distribution limited to U.S. Gov't. agencies only;  
Test and Evaluation: 22 Mar 72. Other requests for  
this document must be referred to Director, Air Force  
Weapons Lab., Attn: DEZ, Kirtland AFB, N.  
Mex. 87117.

DESCRIPTORS: (\*PAVEMENTS, DETERIORATION), CONCRETE,  
CRACK PROPAGATION, AGING(MATERIALS), CRACKS, JOINTS,  
EPOXY RESINS, MICROSTRUCTURE, WEATHER, DRAINAGE,  
FREEZING, HEATING, ENVIRONMENT, MAINTENANCE, SAMPLING,  
ROADS, RUNWAYS, MILITARY ENGINEERING, REVIEWS  
(U)  
(U)

IDENTIFIERS: D LINE CRACKING

A survey was made to determine whether there is  
presently an effective means to control 'D' line  
cracking, and if not, what work is being done to  
overcome the problem. Through personal contacts and  
correspondence with Air Force, State Highway  
Departments, Corps of Engineers, universities  
and other interested agencies, present techniques for  
control or retardation of 'D' line cracking and  
research planned or in progress were determined.  
This report presents the results of the survey.  
In summary, the survey indicated that there is  
currently no method for preventing, retarding or  
controlling 'D' line cracking. Also only a very  
limited research effort is being directed toward  
solution of the problem. (Author)  
(U)

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD- 894 275L 13/2 11/2

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILLStudy of Reflection Cracking in Asphaltic  
Concrete Overlay Pavements, Phase I.

(U)

DESCRIPTIVE NOTE: Technical rept. Feb 68-Oct 71.

MAR 72 113P Kanarowski, Stanley M. ;

PROJ: AF-5224

TASK: 522401

MONITOR: AFWL TR-71-142

## UNCLASSIFIED REPORT

Distribution limited to U.S. Gov't. agencies only;  
Test and Evaluation; 14 Mar 72. Other requests for  
this document must be referred to Director, Air Force  
Weapons Lab., Attn: DEZ. Kirtland AFB, N.  
Mex. 87117.

DESCRIPTORS: (\*PAVEMENTS, \*CRACKS), (\*CONCRETE,  
ASPHALT), CRACK PROPAGATION, REFLECTION, ROADS, LANDING  
FIELDS, MAINTENANCE, WIRE, PNEUMATIC DEVICES, HYDRAULIC  
EQUIPMENT, ADDITIVES, HAMMERS, BIBLIOGRAPHIES,  
REINFORCED CONCRETE, JOINTS, WELD NG, INTERFACES, SEALS,  
ASBESTOS, SAND, DUST, LAMINATES  
IDENTIFIERS: REFLECTION CRACKIN IRE MESH (U)

This report encompasses the results of a literature  
search, a survey of state highway departments, and an  
on-site field inspection of techniques used by state  
and federal agencies to control reflection cracking  
in asphaltic concrete overlays principally on  
portland cement concrete pavements. Procedures were  
generally for the purpose of isolating the overlay  
from the effect of movement in the underlying  
pavement or reinforcing the overlay. These  
procedures are made more effective by measures  
designed to prevent or minimize the underlying  
pavement movement. The methods found helpful in  
reducing reflection cracking include wire mesh  
reinforcement in the asphaltic concrete (AC)  
overlay; use of bond-breakers between the portland  
cement concrete (PCC) and the AC overlay;  
addition of an aggregate base course over the PCC  
followed by an AC overlay; pretreatment of the old  
PCC, such as mudjacking, subsealing, or cracking  
the old pavement by heavy rolling or with a hydraulic  
or pneumatic hammer; use of additives and other  
modifications in the AC composition. Many of the

AD- 894 275L

UNCLASSIFIED

PAGE

232

AD- 892 386L

UNCLASSIFIED

099062

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD- 892 386L 8/13 13/2 1/5

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILL

Stabilization for Pavements.

(U)

DESCRIPTIVE NOTE: Technical rept. Feb 68-Jul 71.

FEB 72 87P Rice, J. L. ;

PROJ: AF-5224

TASK: 522401

MONITOR: AFWL TR-71-99

## UNCLASSIFIED REPORT

Distribution limited to U.S. Gov't. agencies only;  
Test and Evaluation; Feb 72. Other requests for  
this document must be referred to Director, Air Force  
Weapons Lab., Attn: DEZ. Kirtland AFB, N.  
Mex. 87117.

DESCRIPTORS: (\*SOILS, STABILIZATION), (\*LANDING FIELDS,  
\*PAVEMENTS), FOUNDATIONS(STRUCTURES), CONCRETE, DESIGN,  
PERFORMANCE(ENGINEERING), DEFLECTION, STRAIN GAGES, TEST  
FAILURE(MECHANICS), LOADS(FORCES), SHEAR STRESSES, ELASTIC PROPERTIES, TEST  
EQUIPMENT, METHODS  
IDENTIFIERS: FLEXIBLE PAVEMENTS, PAVEMENT BASES,  
PAVEMENTS, RIGIDITY, SOIL STABILIZATION (U)

Rigid and flexible pavement model tests were  
conducted to evaluate methods for assessing the  
structural benefits imparted to a pavement structure  
by stabilized elements. Current Corps of  
Engineers rigid pavement design and evaluation  
methods are based on stress in the concrete pavement  
as calculated by the Westergaard algorithm. This  
method appears applicable for pavements containing  
lime and bituminous stabilized layers only. Cement  
stabilized layers should be evaluated by an elastic  
layered algorithm. The California Bearing  
Ratio method of design and evaluation of flexible  
pavement structure appeared to yield satisfactory  
results for flexible pavements containing stabilized  
elements. (Author)

(U)



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DNC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099052

AD- 890 034L 11/11

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILL

Laboratory and Field Study of Rubber  
Removal Compounds. (U)

DESCRIPTIVE NOTE: Technical rept. Jan 69-Jul 71,

NOV 71 39P Memphis, Robert F.;

PROJ: AF-6111A

TASK: 5.6

MONITOR: AFWL TR-71-79

UNCLASSIFIED REPORT

Distribution limited to U.S. Gov't. agencies only;  
Test and Evaluation; Nov 71. Other requests for  
this document must be referred to Director, Air Force  
Weapons Lab., Attn: DEZ. Kirtland AFB, N.  
Mex. 87117.

DESCRIPTORS: (\*CLEANING COMPOUNDS, \*MATERIALS), (\*EPOXY  
TESTING, MATERIALS), ELASTOMERS, SOLVENT ACTION,  
DEGRADATION, PAVEMENTS, TEST METHODS, (U)TEST  
MET JS (U)

IAC ACCESSION NUMBER: PL-017143

IAC DOCUMENT TYPE: PLASTIC -MICROFICHE--

Use of a new material as a chemical rubber remover  
caused deterioration of epoxy resin concrete patches.  
The cause of deterioration was investigated. The  
results have shown that all rubber removers will  
cause deterioration of epoxy concrete patches which  
are porous and have a high aggregate- to-binder  
ratio. Deterioration can be prevented by sealing  
the patches, thus deterring absorption of the rubber  
remover. Although phenol is the primary ingredient  
of the remover that causes the deterioration of the  
epoxy resin, elimination of the phenol might not  
reduce deterioration and might reduce the  
effectiveness of chemical rubber removers. (Author,  
modified-PL) (U)

IAC SUBJECT TERMS: P--(U)Airfield pavement-Epoxy,  
Rubber deposit-Airfield pavement, Immersion test-  
Epoxy, Chemical analysis-Rubber removers,  
Deterioration-Epoxy, ZZ Controlled USGO;

AD- 890 034L

UNCLASSIFIED

PAGE

233

AD- 880 626

UNCLASSIFIED

099062

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD- 880 626 11/9

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILL

Epoxy Resin Cure Evaluation: Data  
Report. (U)

DESCRIPTIVE NOTE: Final rept.

FEB 71 14P

REPT. NO. CERL-TR-M-5

PROJ: DA-4-A-062104-A-880, DASA-NWER-  
R13A191D.1

TASK: 4-A-062104-A-88005

UNCLASSIFIED REPORT

Distribution: No Foreign without approval of  
Director, Defense Atomic Support Agency,  
Washington, D. C. 20305.  
DESCRIPTORS: (\*EPOXY RESINS, AGING(MATERIALS)), (\*ROCK,  
BONDING), TEMPERATURE, HUMIDITY, TENSILE PROPERTIES,  
MECHANICAL PROPERTIES (U)  
IDENTIFIERS: HARDENED INSTALLATIONS (U)

IAC ACCESSION NUMBER: PL-016588

IAC DOCUMENT TYPE: PLASTIC -MICROFICHE--

The objective of this work was to investigate the  
effect of varying the temperature and time of cure at  
selected values of relative humidity on the tensile  
properties of epoxy resin system by laboratory  
techniques. The relative humidities ranged from 30  
to 100% (saturated). The time of cure ranged  
from 30 to 180 days with tests at 30-day increments.  
The laboratory data suggested that the engineering  
properties of the epoxy resin system were sensitive  
to time and temperature of cure as well as relative  
humidity. The epoxy resin system performed well for  
environmental temperatures in the range of 50 to 80 F  
with the relative humidity not exceeding 75%.  
(Author, modified-PL) (U)

IAC SUBJECT TERMS: P--(U)Adhesive-Epoxy, Bonding-  
Rock, Curing-Epoxy, Humidity effect-Epoxy,  
Temperature effect-Epoxy, Tensile strength-Epoxy,  
ZZ Controlled NOFORN;

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD- 870 723L 13/2 1/5

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLServiceability of Repairs to Rigid  
Pavement.

(U)

DESCRIPTIVE NOTE: Technical rept.,  
MAR 70 72P Pace, George M. ;  
PROJ: AF-921A  
MONITOR: AFWL TR-69-51

## UNCLASSIFIED REPORT

Distribution: USGO: others to Director, Air  
Force Weapons Lab., Attn: WLCT. Kirtland  
AFB, N. Mex. 87117.

DESCRIPTORS: (\*LANDING FIELDS, PAVEMENTS), (\*PAVEMENTS,  
MAINTAINABILITY), RUNWAYS, CONCRETE, FAILURE(MECHANICS),  
DEFORMATION, EXPANSION JOINTS, CRACKS, MAINTENANCE,  
EPOXY RESINS, BINDERS (U)

IAC ACCESSION NUMBER: PL-014818

IAC DOCUMENT TYPE: PLASTIC -MICROFICHE--

Field survey data are reviewed and analyzed in  
regard to the methods and performance of repairs that  
have been used for concrete airfield pavements. The  
most prevalent types of rigid pavement defects or  
failures and the methods of repairs that have been  
observed are discussed. Comparisons are made  
between the performance of repairs as determined  
by field inspection and that reported in a  
comprehensive survey conducted by the University of  
Arizona. (Author, modified-PL) (U)

IAC SUBJECT TERMS: P--(U)Airfield-Concrete/epoxy,  
Environmental effect-Concrete/epoxy, Pavement-  
Concrete/epoxy, Performance-Airfield pavement,  
Repair-Concrete/epoxy, ZZ Controlled NOFORN;

AD- 870 723L

UNCLASSIFIED

PAGE

234

AD- 867 374L

UNCLASSIFIED

099062

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD- 867 374L 13/3 11/2 11/4

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLDevelopment and Evaluation of a High-Strength  
Polyester Synthetic Concrete.

(U)

DESCRIPTIVE NOTE: Final technical rept.,  
MAR 70 68P Bloss, Donald R. ;Hubbard,  
S. J. ;Gray, B. H. ;  
REPT. NO. CERL-TR-M-2  
MONITOR: SAMSO TR-69-294

## UNCLASSIFIED REPORT

Distribution: USGO: others to Office of the  
Chief of Engineers (Army), Washington, D. C.  
20314.

SUPPLEMENTARY NOTE: DDC Form 55 not necessary for  
document request.  
DESCRIPTORS: (\*POLYESTER PLASTICS, \*CONCRETE),  
(\*THERMOSETTING PLASTICS, CONCRETE), TEST METHODS,  
COMPRESSIVE PROPERTIES, COMPOSITE MATERIALS, MECHANICAL  
PROPERTIES (U)  
IDENTIFIERS: CONCRETE BINDER POLYMERS, POLYESTER  
SYNTHETIC CONCRETE (U)

IAC ACCESSION NUMBER: PL-014754

IAC DOCUMENT TYPE: PLASTIC -MICROFICHE--

A number of resin types with varying aggregates  
were evaluated. It was found that the strength of  
concrete was limited to about 15,000 psi using  
conventional aggregates. The most promising  
material, ppg 5119 IN COMBINATION WITH Type III  
cement, was found to be the only concrete to exceed  
the 20,000 psi compressive strength goal. The  
resin-cement ration was found to be optimum at about  
1:2 by weight. Investigations revealed that the  
high-strength synthetic concrete's value lies in its  
compressive strength of 20,000 psi and above. The  
nominal modulus of elasticity after two days and at  
room temperature is about 1,400,000 psi. Direct  
tension values are in excess of 2000 psi. Major  
drawbacks of this material include extreme reduction  
of strength with temperature (6000 psi 210 F).  
Costs are in excess of \$250 per cubic yard for  
materials alone, plus high placement costs due to  
special handling requirements. Handling is  
difficult because the material has a short pot life  
and must be mixed in small batches. It also has a (U)

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD- 787 295 9/2 13/2

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILL

Environmental Impact Computer System.

(U)

DESCRIPTIVE NOTE: Final rept.,

SEP 74 113P Lee, E. Y. S.; Jain, R.

K.; Lee, E. K. C.; Goettel, B.;

REPT. NO. CERL-TR-E-37

PROJ: DA-4-A-162121-A-896

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Information systems, \*Data management,  
\*Environmental engineering, Information retrieval,  
Ecology, Computer programs, Data processing.  
FORTRAN

(U)

This report describes a pilot program in the computer storage and retrieval of environmental impact information. The basic concepts related to implementation and the modes of access to the data are discussed. Also, an outline of the nature of data and the requirements for its management are given, followed by an expression of the reasons for choosing System 2000, a generalized data-base management system developed by MRI Systems Corporation, as the framework for the software. Lastly, the capabilities of this application of System 2000 are discussed in general terms, accompanied by an extensive set of specific examples and representative commands from the DA study, Procedures for Evaluating Environmental Impact of Army Military Programs, for which this computer system was initially developed. Several appendices, expanding on subjects mentioned in the report and serving as reference material, are provided. (Author)

(U)

AD- 787 295

UNCLASSIFIED

PAGE

235

AD- 786 551

UNCLASSIFIED

099062

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD- 786 551 14/1 5/1 15/5 13/2

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILLComputer-Based Specifications: Cost  
Analysis Study.

(U)

DESCRIPTIVE NOTE: Final rept.,

AUG 74 18P Poskus, Uldis R.;

REPT. NO. CERL-TR-P-25

PROJ: DA-4-A-0612121-A-891

TASK: 4-A-0612121-A-89106

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Cost analysis, \*Data processing,  
\*Construction, \*Specifications, Magnetic tape,  
Typewriters, Personnel, Reviews, Computer  
applications, Optimization, Time studies,  
Benefits, Savings  
IDENTIFIERS: Army Corps of Engineers

(U)

(U)

The computer-based specifications cost analysis study measured the absolute and relative efficiency of three methods of specification preparation: conventional typewriter based, magnetic tape selectric typewriter (MTST) based, and computer based. The computer-based method employed a keyboard/printer terminal linked to a time-sharing computer, using a text-editing computer program. The test procedure involved a controlled, repetitive preparation of representative samples of six Corps of Engineers guide specifications. The results indicate: (1) the computer-based method costs are 55 percent of MTST method costs and 39 percent of conventional typewriter method costs; (2) MTST costs are 72 percent of typewriter costs. (Modified author abstract)

(U)

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099052

AD- 785 652 20/12 11/6

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILL

A Generalized Kinematic Hardening Theory.

(U)

73 16P McDowell, E. L. ;

UNCLASSIFIED REPORT

DESCRIPTORS: \*Hardening, \*Stresses,  
\*Fatigue(Mechanics), Life expectancy,  
Mathematical models

(U)

The influence of inelastic behavior of materials ranges from the design of structures to survive earthquake motions to the design of minute machine parts for a specified expected service life. The scope of the present paper is limited to generalizing simple kinematic hardening theory so as to directly attack the question of fatigue life for realistic time-dependent three-dimensional stress states. This new theory of kinematic plastic flow defines an additional physical parameter, the stress hardening coefficient, which services as memory of the previous plastic states. For a specified material, the limiting value of the stress hardening coefficient can be determined from simple one-dimensional fatigue experiments. This limiting value of the stress hardening coefficient directly determines the service life for the material subjected to complex stress states.

(U)

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD- 785 551 13/13 9/2

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILL

An Evaluation of Computer-Aided Architectural Systems.

(U)

DESCRIPTIVE NOTE: Interim rept.,  
AUG 74 37P Dains, R. B. ; Kelley, K. C. ;

REPT. NO. CERL-IR-D-31  
PROJ: DA-4-A-062103-A-891  
TASK: 4-A-062103-A-89106

UNCLASSIFIED REPORT

DESCRIPTORS: \*Computer applications, \*Architecture,  
State of the art, Allocations, Questionnaires  
IDENTIFIERS: \*Computer aided design, \*Structural  
design, Evaluation

(U)

(U)

This report outlines the state-of-the-art in computer-aided design, suggests a number of possible uses of computers to solve Corps design problems, and makes recommendations for the direction of future work. (Modified author abstract)

(U)

AD- 785 652

UNCLASSIFIED

PAGE

236

AD- 785 551

UNCLASSIFIED

099062

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD- 784 092 13/3 13/13

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILL

The Use of Coral as an Aggregate for  
Portland Cement Concrete Structures.

(U)

DESCRIPTIVE NOTE: Final rept.,

JUN 74 43p Howdysheill, P. A. ;

REPT. NO. CERL-TR-M-88

PROJ: DA-4-DW-78012-A-OK-1

TASK: 4-DW-78012-A-OK-102

UNCLASSIFIED REPORT

DESCRIPTORS: \*Construction materials, \*Coral,  
Concrete, Construction, Structures,  
Deterioration, Military engineering, Pacific  
Ocean Islands  
IDENTIFIERS: \*Aggregates(Materials),  
Evaluation

(U)

(U)

The investigation documents the experience gained by the Corps of Engineers and the Navy since World War II in the use of coral as an aggregate for portland cement concrete. The approach was to evaluate relevant literature and construction and inspection records, visit construction and material preparation sites, evaluate existing coral concrete structures, and analyze coral aggregate and coral concrete samples in the laboratory. The results of the investigation indicate that coral has successfully been used as an aggregate for concrete in vertical construction. The only significant type of deterioration observed in coral concrete structures was the cracking and spalling of concrete associated with corroding reinforcing steel. The severity of the corrosion-spalling problem was sufficient in some cases to affect structural integrity, while in other cases little or no deterioration was observed. For the most part specifications and construction techniques currently being used for production of coral aggregate and coral concrete are similar to specifications and techniques for conventional aggregate and concrete. (Author)

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AD- 784 092

UNCLASSIFIED

PAGE

237

AD- 784 059

UNCLASSIFIED

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UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD- 784 059 5/11

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILL

Occupants Opinions of Military Housing:  
Responses to Open-Ended Questions in Army  
Portion of Tri-Services Survey.

(U)

DESCRIPTIVE NOTE: Final rept.,

AUG 74 103p Brauer, R. L. ; Dressel, D.

L. ;

REPT. NO. CERL-TR-D-27

PROJ: DA-4-A-764717-D-895

TASK: 4-A-764717-D-89503

UNCLASSIFIED REPORT

DESCRIPTORS: \*Housing(Dwellings), \*Military  
facilities, \*Attitudes(Psychology), Surveys,  
Questionnaires, Reaction(Psychology), Army  
personnel

(U)

IDENTIFIERS: Trends, Tri-services housing  
survey

(U)

Comments to three open-ended questions from 1004  
questionnaires of the Army portion of the Tri-  
Services Housing Survey were content-analyzed  
and the results were tabulated. Although no single  
comment category showed an overwhelming consensus,  
several trends were evident. The results are  
discussed. It is suggested that pilot do-it-  
yourself projects should be initiated so that housing  
occupants can identify with their housing through  
personal involvement. (Modified author abstract)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD- 784 056 15/5 5/10

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILL

Comparison of Consumer Satisfaction Before  
and After Dining Facility Renovations at  
Travis AFB, California.

(U)

DESCRIPTIVE NOTE: Technical rept..

JUL 74 50P Gibbs, Wes ;  
REPT. NO. CERL-TR-D-28  
PROJ: DA-1-J-662713-AJA-5

UNCLASSIFIED REPORT

DESCRIPTORS: \*Dining halls, \*Air Force facilities,  
\*Attitudes(Psychology), \*Consumers, Air  
Force personnel, Surveys, Modification,  
Statistical data, Variations, Environmental  
engineering  
IDENTIFIERS: \*Satisfaction, Comparison, Before  
and after studies

(U)

(U)

The report presents results of an environmental  
design experiment conducted at three dining  
facilities at Travis AFB, CA, to test the  
hypothesis that interior decor renovations to Air  
Force dining facilities will improve consumer  
satisfaction. This approach implies that greater  
utilization and participation will result. Two  
measures of consumer satisfaction were developed for  
this study: direct and indirect. The  
measurements before and after renovation were  
compared statistically to determine significant  
changes in consumer satisfaction. The measurements  
were also compared statistically to determine if  
significant differences existed among the three  
facilities studied. (Modified author  
abstract)

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AD- 784 056

UNCLASSIFIED

PAGE 238

AD- 784 055

UNCLASSIFIED

099062

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD- 784 055 13/3 7/4 11/2

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILL

Laboratory Evaluation of a Chemical Technique  
to Determine Water and Cement Content of  
Fresh Concrete.

(U)

DESCRIPTIVE NOTE: Interim rept.,

JUL 74 43P Howdysheill, P. A. ;  
REPT. NO. CERL-IR-M-97  
PROJ: DA-4-A-062103-A-891  
TASK: 4-A-062103-A-89103

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: Report on Rapid Testing-Plastic  
PCC.  
DESCRIPTORS: \*Concrete, \*Volumetric analysis,  
\*Cements, Strength(General), Plastic  
properties, Calcium, Chemical analysis  
IDENTIFIERS: \*Flame photometry, \*Moisture content,  
Performance evaluation

(U)

(U)

The report presents information obtained from  
laboratory evaluation of a chemical procedure for  
determining the water and cement content of a  
concrete in the plastic state. The procedure uses  
chloride ion titration to determine water content,  
and flame photometry (calcium signature) to  
determine cement content. This study evaluated the  
procedure to determine if it could be used to  
estimate concrete strength potential and to define to  
what extent test results are influenced by aggregate  
type, aggregate moisture conditions, aggregate  
absorption capacity, concrete mix proportions, mix  
time, and time of sampling. Results indicate that  
the procedure can rapidly (approximately 15  
minutes) determine the water and cement content of  
fresh concrete and that it can be used to predict  
strength potential with an accuracy equal to that of  
predicting strength from known mix proportions.  
(Modified author abstract)

(U)

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD- 782 914 13/9 13/3 13/2

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILLEvaluation of Lunar Drilling Technology for  
Terrestrial Applications. (U)

DESCRIPTIVE NOTE: Final rept.,  
JUL 74 20P Aufmuth, R. E. ;  
REPT. NO. CERL-TR-M-96  
PROJ: DA-4-A-162121-A-890

## UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: See also AD-781 944.

DESCRIPTORS: \*Drilling machines, Technology,  
Drill-. Boreholes, Core sampling, Field tests,  
Concrete, Fibers

IDENTIFIERS: \*Technology utilization, \*Technology  
transfer, Dry drilling, Drill stems (U)

This report presents results of a laboratory  
evaluation of a NASA-developed drill system for  
obtaining test core samples of concrete, rock, and  
soil materials for nondestructive testing.  
Excellent test cores from a variety of materials  
were obtained at drilling rates greater than normally  
achieved with conventional systems. Additional  
tests are required to assess the cost effectiveness  
of the system. (Author) (U)

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD- 782 913 13/2 15/5

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILLA Heuristic Model for Predicting Bridge  
Construction Requirements. (U)

DESCRIPTIVE NOTE: Technical manuscript,  
JUL 74 119P Ryan, T. C. ;  
REPT. NO. CERL-TM-C-3

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Bridges, \*Construction, Heuristic  
methods, Decision making, Site selection, Military  
requirements, Predictions, Computerized simulation,  
Theses (U)

Research is directed to formulating a bridge and  
resource requirements simulation model for use by  
program managers concerned with the ground lines-of-  
communication sector of the construction industry.  
Bridge alternatives are designed and selected to  
reduce the obstacle effect of the terrain such that  
commodities flow (traffic) along the line-of-  
communication (highway) is improved. The  
resulting tool provides a heuristic high-resolution  
model for policy testing and decision making in a  
highly dynamic system involving non-commensurable  
objectives such as cost, time and manpower. The  
problem of predicting bridge and resource  
requirements is defined through a systematic analysis  
of the bridge construction system's purpose,  
components, constraints and required information.  
Examples of the need for accurate prediction of  
requirements are discussed for both the civilian and  
military applications. (Modified author  
abstract) (U)

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD- 782 912 15/5 13/3

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILLInformation Storage and Retrieval System for  
Life Expectancy of Facilities,

(U)

MAY 74 97P Lee, E. K. C. ; Kirby, J.  
G. ; Grogas, J. M. ;  
REPT. NO. CERL-TR-P-22  
PROJ: CERL-OK-1  
TASK: OK-1-02

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Military facilities, \*Life expectancy,  
\*Data bases, Data processing, Construction  
materials, Logistics, Inventory control, Life  
cycles, Information retrieval

(U)

The report presents the results of a preliminary  
data bank developed to store information necessary to  
use the CERL Life Expectancy Model, and also to  
provide information source for life cycle cost  
studies. The data base structure is explained, and  
the results obtained from sample retrieval commands  
are illustrated. (Author)

(U)

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD- 782 911 13/2

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILLUser Manual for the Acquisition and  
Evaluation of Operational Blast Noise  
Data.

(U)

DESCRIPTIVE NOTE: Final rept.,  
JUN 74 140P Homans, B. ; McBryan, J. ;  
Schomer, P. ;  
REPT. NO. CERL-TR-E-42  
PROJ: DA-4-A-162121-A-896  
TASK: 4-A-162121-A-89606

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Military facilities, \*Noise pollution,  
\*Manuals, Blast, Construction, Contours, Maps,  
Land forms, Population, Data acquisition, Data  
processing, Computer programming, Predictions,  
Noise reduction

(U)

The report presents the means for acquiring  
operational blast noise information and evaluating  
the resulting contours. Forms introduced and  
explained to facilitate the compilation of data  
included the Target Data Sheet, Firing  
Point Data Sheet, and Attachment Sheet.  
Overlays to be constructed in order to evaluate the  
contours consist of generalized land-use and  
population density map overlays. The means is  
given to interpret the contours according to  
currently accepted classification systems.

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AD- 782 912

UNCLASSIFIED

PAGE

240

AD- 782 911

UNCLASSIFIED

099062



## UNCLASSIFIED

DNC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099052

AD- 781 944 13/9 13/3 13/2

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILLEvaluation of Lunar Drilling Technology for  
Terrestrial Applications -- Field Study.

(U)

DESCRIPTIVE NOTE: Final technical rept.,  
JUL 74 34P Aufmuth, R. E. ;  
REPT. NO. CERL-TR-M-92  
PROJ: DA-4-A-162121-A-800

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Drilling machines, Technology,  
Drills, Boreholes, Core sampling, Field tests,  
Arizona, New Mexico  
IDENTIFIERS: \*Technology utilization, \*Technology  
transfer, Dry drilling, Drill stems

(U)

(U)

The report presents results of the field evaluation of a NASA-developed drill system which requires no cooling or lubricating agents. Performance of the NASA system was evaluated at sites in Arizona and New Mexico consisting of volcanic and igneous intrusives. Although the NASA system performed well in most of the materials encountered (at a drill rate of approximately 2 inches per minute), presence of unexpected moisture at several sites retarded efficient progress. Conclusions are presented concerning the nature and scope of laboratory tests suggested and justified by the field test results. (Author)

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AD- 781 944

UNCLASSIFIED

PAGE

241

AD- 780 802

UNCLASSIFIED

099062

## UNCLASSIFIED

DNC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD- 780 802 11/6

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILL

Cyclic Mechanical Tests and an Appropriate  
Analytical Stress-Strain Model for A36  
Steel.

(U)

DESCRIPTIVE NOTE: Final rept.,  
MAY 74 61P Martin, J. F. ;  
REPT. NO. CERL-TR-M-86  
PROJ: DA-4-A-161102-B-52-E  
TASK: 4-A-161102-B-52-E-09

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Steel, \*Stress strain relations,  
Cycles, Computer programs, Test methods  
IDENTIFIERS: Finite element analysis, Steel A-  
36

(U)

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The report establishes the monotonic and steady-state cyclic stress-strain properties for smooth, uniaxially-loaded specimens of A36 steel. Transient characteristics of cyclic hardening and softening and cyclic relaxation of mean stress are investigated. Deflection versus load and strain versus load are reported for a simple beam subjected to three-point bending. Six computer programs are included. These programs were developed to fit specific needs of the finite element program for determining energy dissipation in dynamically loaded structures. (Author)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099052

AD- 780 801 11/6 20/12

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN ILL

A New Look at Structural Energy Dissipation. (U)

DESCRIPTIVE NOTE: Final rept.,

MAR 74 63P Plummer, F. B., Jr;

REPT. NO. CERL-TM-W-82

PROJ: DA-4-061102-B-52-E

TASK: 4-A-061102-B-52-E-03

UNCLASSIFIED REPORT

DESCRIPTORS: \*Dynamic loads, \*Steel, Energy, Dissipation, FORTRAN, Computerized simulation, Stresses, Stress strain relations, Computer programs.

IDENTIFIERS: Finite element analysis, Steel A-36, \*Energy dissipation (U)

The investigation is the first step of a continuing study on energy dissipation in large, dynamically loaded structures. Work is directed at qualitatively and quantitatively defining the dissipative properties of complex structural systems, with a view toward improving the considerations of energy dissipation and nonlinear response in the seismic analysis and design of buildings. The present study deals with the extension of finite element methods to provide an analytical means for determining energy dissipation caused by cyclic plasticity in cyclically loaded structures. A computer-based cyclic stress-strain simulation model is developed which serves as the basis for the finite element constitutive relation. The model's behavior incorporates hysteretic material behavior and load history effects. It is experimentally verified for A-36 steel. (Modified author abstract) (U)

AD- 780 801

UNCLASSIFIED

PAGE

242

AD- 780 800

UNCLASSIFIED

099062

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD- 780 800 15/5 13/3

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN ILL

Wood Design Parameters for Theater of Operations Applications. (U)

DESCRIPTIVE NOTE: Final rept.,

MAY 74 55P Heidersbach, R. H., Jr;

REPT. NO. CERL-TR-W-80

PROJ: DA-4-A-664717-D-895

TASK: 4-A-664717-D-89501

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: Report of AFCS-Design Parameters for T.O. Material Applications. DESCRIPTORS: \*Military facilities, \*Forward areas, \*Construction materials, \*Wood, Lumber, Construction, Specifications, Stresses IDENTIFIERS: Design parameters (U) (U)

The report presents the results of a study of the wood design parameters used in developing standard and non-standard design for use in theater of operations (T.O.) construction. Of prime importance was the requirement to determine if present design guidance for wood structures in the T.O. is adequate, taking into consideration the diverse environments wherein T.O. structures may be built. An then consideration was to determine if present wood design parameters should be altered in view of the limited requirements for short-term T.O. applications. Recommended alterations to present design and supply procedures are presented in tabular form along with explanations as to why present practice should be changed. (Author) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD- 779 511 15/5 13/3

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILL

Selection and Design Criteria for the Army  
Facilities Components System. (U)

DESCRIPTIVE NOTE: Final rept.,  
APR 74 42P Dessouky, M. I. ; Ryan, T.

C. ;  
REPT. NO. CERL-TR-F-21  
PROJ: DA-4-A-664717-D-895  
TASK: 4-A-664717-D-89501

UNCLASSIFIED REPORT

DESCRIPTORS: \*Army operations, \*Military facilities,  
Construction, Construction materials, Modular  
construction, Management planning and control,  
Management information systems, Cost analysis (U)  
IDENTIFIERS: Design criteria, AFCS(Army  
Facilities Component System), Army  
facilities component system (U)

The report presents a proposed procedure for the  
selection and design of components for the Army  
Facilities Component System (AFCS). It  
examines the present AFCS planning process and  
discusses methods for incorporating state of the art  
changes in construction techniques, materials, and  
planning. Examples using the present and proposed  
procedures are outlined and facilities designs,  
including cost and effort comparisons between the  
systems, are analyzed. Descriptions of the data  
base and the management information system for the  
proposed procedure are provided. Conclusions  
derived and advantages recognized from the proposed  
procedure are discussed. (Author) (U)

AD- 779 511

UNCLASSIFIED

PAGE

243

AD- 779 510

UNCLASSIFIED

099062

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD- 779 510 13/3

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILL

Structures on Expansive Soils. (U)

DESCRIPTIVE NOTE: Final rept.,  
APR 74 56P Jobes, W. P. ; Stroman, W.

R. ;  
REPT. NO. CERL-TR-M-81  
PROJ: DA-4-DW-78012-AOK-1  
TASK: 4-DW-78012-AOK-102

UNCLASSIFIED REPORT

DESCRIPTORS: \*Foundations(Structures), \*Soil  
mechanics, \*Structures, Superstructures,  
Expansion, Interactions, Soil stabilization,  
Reinforced concrete, Moisture,  
Failure(Mechanics), Cracks, Drainage,  
Structural members, Tension (U)  
IDENTIFIERS: \*Structural design, \*Expansive soils,  
Soil structure interactions, Design (U)

The purpose of the project was to establish  
reasonable criteria for the successful design of  
structures in expansive soils areas. Damage to  
foundations and superstructures caused by expansion  
of soil is discussed. The importance of preventing  
infiltration of water into the soil beneath and  
around foundations is emphasized, and means of  
preventing this infiltration are discussed. Design  
or details of the various parts of foundations and  
superstructures is reviewed, and recommendations are  
made concerning practices to be followed.  
Inspection of the construction to insure compliance  
with the intent of the design is critical if the  
structure is to remain sound. (Author) (U)

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099052

AD- 779 509

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ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILLTechnical Evaluation Study Solid Waste  
Generation and Disposal Red River Army  
Depot, Texarkana, Texas.

(U)

DESCRIPTIVE NOTE: Final rept.,

APR 74 26P Rigo, H. G. ; Nelson, D. N.

; Eibl, M. E. ;

REPT. NO. CERL-TR-E-33

UNCLASSIFIED REPORT

DESCRIPTORS: \*Solid waste disposal, \*Military facilities, \*Texas, Earth filled incinerators, Combustion, Scrubbers, Costs, Air pollution

IDENTIFIERS: Sanitary landfills, Heat recovery, Waste recycling, Texarkana(Texas), Red River Army Depot

(U)

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IAC ACCESSION NUMBER: PL-900253

IAC DOCUMENT TYPE: PLASTIC -MICROFICHE--

The study was initiated to evaluate the solid waste disposal problems at Red River Army Depot, Texarkana, TX, and to develop design criteria for disposal of solid waste generated on the base. The problem scope was expanded to include solid waste generated at Lone Star Army Ammunition Plant, Texarkana, TX, since both bases share a common landfill. A technology review was conducted, applicable standards were evaluated, and sampling and analysis of the waste streams was performed. Pyrolysis, power recovery incineration, and recycle and landfill techniques were examined. The abatement method selected for the ultimate disposal of waste was power recovery incineration. This decision was based on relative life-cycle costs of the alternatives considered. Design criteria were prepared for a power recovery incinerator complex utilizing parallel rotary kiln incinerators, a package boiler, and a scrubber. (Author)

(U)

IAC SUBJECT TERMS: P--(U)Industrial pollution-Techniques review, Ordnance pollution-Manufacturing plants, Design guide-Incineration, Waste water pollution-Water sampling, Ordnance pollution-Cost analysis, ZZ MTD, ZZ Unlimited.;

AD- 779 509

UNCLASSIFIED

PAGE

244

AD- 778 162

UNCLASSIFIED

099062

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD- 778 162

13/2

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILLIndustrial Wastewaters, Red River Army  
Depot, Texarkana, Texas.

(U)

DESCRIPTIVE NOTE: Final rept.,

APR 74 77P Fileccia, R. J. ; Matherly,

J. E. ; Porter, H. A. ;

REPT. NO. CERL-TR-E-24

UNCLASSIFIED REPORT

DESCRIPTORS: \*Waste treatment, \*Military facilities, Industries, Standards, Removal, Oils, Greases, Phosphates, pH factor, Classification, Coats, Collection, Pumps, Maintenance

IDENTIFIERS: Red River Army Depot, Texarkana(Texas), Design Criteria, \*Industrial waste treatment

(U)

(U)

IAC ACCESSION NUMBER: PL-900144

IAC DOCUMENT TYPE: PLASTIC -MICROFICHE--

The study describes industrial wastewaters discharged from the maintenance area of Red River Army Depot, Texarkana, TX. Design criteria for industrial wastewater treatment facilities and recommendations for reducing industrial wastewater volume are provided. Field and laboratory studies and measurements are made with regard to the character and treatment of wastewater. Design criteria for a treatment facility to afford free oil and grease removal, phosphate removal, and pH adjustment are generated. The treatment is to precede biological treatment in an existing secondary treatment facility at Lone Star Army Ammunition Plant. (Modified author abstract)

(U)

IAC SUBJECT TERMS: P--(U)Ordnance pollution-Water sampling, Waste water pollution-Physical techniques, Pollutants-Cost analysis, ZZ MTD, ZZ Unlimited.;

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD- 778 156 13/13 8/13

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN ILL

Foundations for Family Housing.

(U)

DESCRIPTIVE NOTE: Final rept.,

APR 74 109p Bowles, J. E. ;

REPT. NO. CERL-TR-D-20

PROJ: DA-4-A-664717-D-895

TASK: 4-A-664717-D-89503

UNCLASSIFIED REPORT

DESCRIPTORS: \*Housing(Dwellings),  
\*Foundations(Structures), Sites, Soil science,  
Superstructures, Structural mechanics,  
Environmental engineering, Cost analysis  
IDENTIFIERS: \*Soil engineering

(U)

(U)

The report presents in abbreviated form information necessary to select appropriate foundations for family housing for various site conditions, climates, and construction methods. Included are a comprehensive survey of foundations presently used for family housing, a review of the soil mechanics used in foundation design, a discussion of current forms of house construction, and examples of cost computations for some typical foundations. Also included are several tables which facilitate the selection of an appropriate foundation type.  
(Author)

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AD- 778 156

UNCLASSIFIED

PAGE

245

AD- 777 769

UNCLASSIFIED

099062

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD- 777 769 5/11 13/13

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN ILL

Attitudes and Preferences of Occupants of Military Family Housing Communities. Volume I. Executive Digest.

(U)

DESCRIPTIVE NOTE: Final rept.,

APR 74 68p

R. D. Pfeister, J. L. ; Dinnat, R. M. ;

REPT. NO. CERL-TR-D-22

PROJ: DA-4-A-664-P-17895

TASK: 4-A-664-P-1789503

UNCLASSIFIED REPORT

DESCRIPTORS: \*Urban planning,  
\*Housing(Dwellings), \*Military personnel,  
Questionnaires, Surveys, Assessment  
IDENTIFIERS: Residential buildings, Houses

(U)

(U)

Planners, designers, and managers are the key agents through which housing needs and preferences of the military family are satisfied. At present, there is no pertinent, up-to-date mechanism which provides these agents with useful information about such needs and preferences. The results of this study are a first step toward establishing a system of timely information. Occupants of on-post family housing were surveyed by questionnaire. It contains a brief description of the survey, selected findings, and inferences drawn from the findings.  
(Modified author abstract)

(U)

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD- 777 768 8/7 8/13 13/2

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILLA Systematic Determination of Engineering  
Criteria for Rock.

(U)

DESCRIPTIVE NOTE: Final rept.,  
APR 74 46P Aufmuth, Raymond E. ;  
REPT. NO. CERL-TR-M-79  
PROJ: DA-CERL-OK-1  
TASK: OK-1-02

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Rock mechanics, \*Engineering geology,  
Test methods, Classification, Indexing, Indexing  
Tables(Data), Tensile strength, Elastic  
properties, Hardness, Compressive properties,  
Shear properties

IDENTIFIERS: Criteria, Computer aided  
analysis

(U)

This Systematic Determination of Engineering  
Criteria for Rock was developed to provide a  
language which presents the engineering  
characteristics of a particular rock in a brief,  
concise and relevant manner. The system combines  
the lithology and the mechanical properties of the  
intact rock to make the information more meaningful  
and useful to engineers and contractors. Data was  
obtained and accurately determined from field index  
tests performed at the borehole sites. Examples of  
the use of the proposed criteria are illustrated by  
use of previously published data and from field  
information. (Modified author abstract)

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AD- 777 768

UNCLASSIFIED

PAGE

246

AD- 777 544

UNCLASSIFIED

099062

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD- 777 544 11/6

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILLMultiple Connectivity and the J Integral of  
Fracture Mechanics.

(U)

DESCRIPTIVE NOTE: Technical manuscript,  
APR 74 14P Honig, E. M. , Jr;  
REPT. NO. CERL-TM-M-85  
PROJ: DA-4-DW-728012-AOK-1  
TASK: 4-DW-728012-AOK-102

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Fracture(Mechanics), \*Welds,  
Steel, Porosity, Numerical analysis  
IDENTIFIERS: J integrals

(U)  
(U)

The path independence of Rice's J integral has  
been clearly shown for an integration path lying in a  
simply connected region, in addition to the  
presumption of elasticity or deformation plasticity.  
Because welded metals may contain voids, such as  
cluster porosity and small cracks in the vicinity of  
a major crack tip in the weld zone, the question of  
path independence of the J integral in a multiply  
connected region is of considerable interest. The  
report shows that the J integral incurs a finite  
increment, at each increase in connectivity, with  
respect to the integral value at the next lower  
connectivity.

(U)

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD- 776 367 13/13

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILL

Electromagnetic Shielding of Structures. (U)

DESCRIPTIVE NOTE: Final rept.,

JAN 74 23P Nielsen, Paul ;

REPT. NO. CERL-TR-E-29

PROJ: CERL-OK-1

TASK: OK-1-03

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Structures, \*Electromagnetic  
shielding, Shielding, Construction  
IDENTIFIERS: Design

Electromagnetic shielding of large volumes is possible with structures fabricated from low-resistance, high-permeability materials. Structural non-uniformities, such as doors, power and signal entry ports, and air conditioning ducts tend to degrade shielding effectiveness. These and a number of other construction details must be properly handled to avoid excessive shielding degradation. These details are discussed in this report. An annotated bibliography of publications on the subject of electromagnetic shielding is included.

(Author)

(U)

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD- 775 812 8/13 11/9

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILL

The Soil-Polymer System. (U)

DESCRIPTIVE NOTE: Technical manuscript (Final),

JAN 74 56P Aufmuth, Raymond E. ;

REPT. NO. CERL-TM-M-72

PROJ: DA-4-A-061101-A-91-D

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Polymers, \*Soil stabilization, Clay  
minerals, Water, Adsorption, Moisture,  
Irradiation, Soil mechanics, Bonding, X ray  
diffraction, Chemical analysis, Polymethyl  
methacrylate, Styrene plastics, Catalysis

(U)

It was shown that polymerization in or with both soils and pure clay minerals greatly enhances their strength characteristics, reduces their susceptibility to adsorption of water and resulting swelling, and provides a durable surface for a number of potential applications. Also, the monomer catalyst system may be field-implemented into materials which have a moisture content near or at the required for optimum compaction. (Author)

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AD- 776 367

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PAGE

247

AD- 775 812

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## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD- 775 430 5/5 5/10

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILL

Employee-Attitude and Office Environment  
Analyses for the Development of Human and  
Architectural Requirements for the Buffalo  
District Office, Buffalo, N.Y. Buffalo  
Office Study Part I.

DESCRIPTIVE NOTE: Final rept.,

FEB 74 95P

REPT. NO. CERL-TR-D-17 Gibbs, Wes, Jr.;

PROJ: DA-4-A-062103-A-891

(U)

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Attitudes(Psychology), \*Human  
factors engineering, Environments, Architecture,  
Questionnaires, Assessment, Personnel  
IDENTIFIERS: Organizational climate

(U)  
(U)

The report presents Part I of an evaluation of  
143 office employees' attitudes toward their work-  
area environments and an assessment of their office  
resource, facility, and service requirements. The  
study was conducted during July-October 1973 at  
the Buffalo District Office of the U.S.  
Army Corps of Engineers, Buffalo, N.Y.  
The measurement techniques of three analyses to  
determine the human and architectural requirements of  
an office environment were demonstrated, and the  
results of the analyses were documented for an  
Architectural Requirement Manual (Part II)  
for the design of the Buffalo District Office  
Environment. (Author)

(U)

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD- 774 849 9/2 13/2 1/5

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILL

User Manual for LIFE1 Computer  
Program.

DESCRIPTIVE NOTE: Final rept.,

JAN 74 54P

Marvin, E.; Willmer, J.; McManus, P.;

REPT. NO. CERL-TR-S-28

PROJ: RDT/E-4-A-664717-D-895

TASK: 4-A-664717-D-89504

(U)

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Pavements, \*Landing fields,  
\*Computer programming, User needs, Digital  
simulation, Landing fields,  
Foundations(Structures), Maintenance, Decision  
making, FORTRAN

(U)

IDENTIFIERS: LIFE1 computer program, \*Design  
criteria

(U)

The report describes a digital computer program  
that enables airfield-pavement designers and planners  
to analyze the consequences of available decision  
alternatives. The program allows different design  
schemes and strategies for maintaining the proposed  
pavement systems. Costs of construction and  
maintenance are estimated, and the various  
combinations of design schemes and maintenance  
strategies are ranked by total costs over the design-  
life of the pavement. Instructions are provided  
for program operation and input preparation for use  
with CDC 6000 series computer systems. The  
program is written in FORTRAN Extended.  
(Author)

(U)



UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD- 774 847 13/13 14/2

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN ILL

Nondestructive Testing of Construction Materials and Operations.

(U)

DESCRIPTIVE NOTE: Final rept.,

DEC 73 68P Sevall, George W. , Jr;

REPT. NO. CERL-TR-M-67

UNCLASSIFIED REPORT

DESCRIPTORS: \*Nondestructive testing, \*Construction, \*Construction materials, Test methods, Joints, Defects(Materials), Joining

(U)

The report reviews nondestructive testing methods applicable to the construction industry. Established methods and methods still in development are included. Recently developed methods were evaluated from initial reports and prototype applications. A number of the new methods show promise in reducing inspection time or presenting information previously unobtainable. Existing and developing methods are also classified according to the construction materials and operations they test. The report is designed to help not only those interested in the field of nondestructive testing, but also those concerned with specific applications. (Author)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD- 774 299 13/2

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN ILL

Air Pollution Engineering Source Evaluation of Ammonia Oxidation Plant Number 10, Holston Army Ammunition Plant, Kingsport, Tennessee.

(U)

DESCRIPTIVE NOTE: Final rept.,

JAN 74 15P Carter, Roy V. ;Conley,

Kathy ;

REPT. NO. CERL-TR-E-23

UNCLASSIFIED REPORT

DESCRIPTORS: \*Air pollution, \*Nitrogen oxides, Flue gases, Gas analysis, Ammonia, Tables(Data), Industrial plants

(U)

IDENTIFIERS: \*Nitric acid plants, Air pollution control

(U)

IAC ACCESSION NUMBER: PL-900500

IAC DOCUMENT TYPE: PLASTIC -MICROFICHE--

Air pollutant emissions from the Ammonia Oxidation Plant, Holston Army Ammunition Plant, Kingsport, Tennessee, were analyzed during the study. Testing was performed to define the concentration and emission rates of free ammonia, oxides of nitrogen (NOx) and oxides of sulfur (SOx) contained in the exit gases. Process and production data for the weak nitric acid manufacturing facility are included. Sampling and analytical techniques employed during the survey are described in detail. (Modified author abstract)

(U)

IAC SUBJECT TERMS: P--(U)Air pollution-Source review, NOx-Air sampling, SOx-Air sampling, Ordnance pollution-Manufacturing plants, Ammonia-Analysis, Holston Army Ammunition Plant, ZZ MTD, ZZ Unlimited.;

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD- 773 716

14/2

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILLThe Effect of Weld Defects on RFI Shielding  
Effectiveness.

(U)

DESCRIPTIVE NOTE: Final rept..

JAN 74 18P

Carlson, Kenneth W. ;

REPT. NO. CERL-TR-M-43

PROJ: IAD-CE-CERL-73-2

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Nondestructive testing,

\*Electromagnetic shielding, \*Welds,

Defects(Materials), Trade off analyses, Test

facilities, Chambers

(U)

Many specifications for electromagnetically shielded facilities require that weld seams be 100 percent defect-free though very little data is available to support this requirement. Such high levels of quality control are expensive and time consuming. The investigation determines the effect of weld defects on the shielding effectiveness of shielded enclosures containing welded seams. More specifically, the amount of shielding degradation as a function of type and size of weld defects in Electromagnetic Pulse shielded enclosures was desired for RFI frequencies of 10 KHZ to 10 GHz. Defects were intentionally implanted in welded 11-gage steel panels. The panels were then tested in a high-quality RFI-sealed shielded enclosure to ascertain the RFI attenuation characteristics of the defect. (Modified author abstract)

(U)

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD- 773 715

13/3

13/2

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILLDevelopment of a Design Manual for Concrete  
Floor Slabs on Grade.

(U)

DESCRIPTIVE NOTE: Final rept..

JAN 74 29P

C. ;Varga, L. ;

Rice, J. L. ;Eberhardt, A.

REPT. NO. CERL-TR-S-27

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Floors, \*Concrete, \*Manuals,  
Construction materials, Dynamic loads, Flexural  
Strength, Foundations(Structures),

Life(Durability), Static loads

IDENTIFIERS: \*Design criteria, \*Design standards,  
Concrete floor slabs

(U)

(U)

The report describes a study preparing a design manual for concrete slabs on grade subjected to moderate to heavy loads. Existing design procedures were reviewed, theoretical studies were made, and an interim manual was prepared. Information in existing manuals was critically reviewed and applicable material used extensively in the preparation. Assumptions made in the manuals with regard to type and volume of vehicular traffic were re-examined on the basis of a field survey and revised when necessary. (Author)

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AD- 773 716

UNCLASSIFIED

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250

AD- 773 715

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD- 773 714 13/2

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN ILL

Sanitary Landfill.

(U)

DESCRIPTIVE NOTE: Final rept.,

JAN 74 31P Nelson, D. L. ;

REPT. NO. CERL-TR-E-22

PROJ: DA-4-A-062103-2-891

TASK: 4-A-062103-A-89103

UNCLASSIFIED REPORT

DESCRIPTORS: \*Earth fills, \*Solid waste disposal, Sanitary engineering, Site selection, Refuse disposal, Hydrology, Geology, Climate, Reviews, Costs, Compacting, Numerical analysis, Ground water, Water pollution, Decomposition

IDENTIFIERS: Design

(U)  
(U)

IAC ACCESSION NUMBER: PL-900350

IAC DOCUMENT TYPE: PLASTIC -MICROFICHE--  
A literature review provided information on the operation and design of sanitary landfills.

Operational parameters reviewed included basic methods of operation, compaction procedures and expected in-place refuse densities, cover requirements, and site improvements. The engineering design considerations summarized were refuse decomposition (including production and control of leachate and gas); the use of information on hydrology, geology, climatology, and waste characteristics to evaluate and classify sanitary landfill sites; possible uses for a completed landfill site; and equipment and cost data. A level mathematical analysis was performed to define optimum cell shape and size and minimum cover conditions in terms of the various physical parameters of the landfill. (Modified author abstract)

(U)

IAC SUBJECT TERMS: P--(U)Solid waste pollution-Design guides, Solid waste pollution-Techniques review, ZZ MTD, ZZ Unlimited.;

AD- 773 714

UNCLASSIFIED

PAGE

251

AD- 773 690

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD- 773 690 5/10

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN ILL

Predicting Community Response to Blast Noise.

(U)

DESCRIPTIVE NOTE: Final rept.,

DEC 73 gap Schomer, Paul D. ;

REPT. NO. CERL-TR-E-17

PROJ: DA-4-A-062212

TASK: 4-A-06221205

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: Report on Sound and Vibration Tolerance Limits--Residential Areas.  
DESCRIPTORS: \*Noise(Sound), \*Community relations, \*Blast, \*Explosives, \*Noise pollution, Attitudes(Psychology), Mathematical prediction, Computer programming, Overpressure, Artillery fire, Ground level, Airburst, Underground explosions

IDENTIFIERS: \*Annoyance

(U)  
(U)

The report presents a preliminary method for predicting levels of annoyance from artillery or blast noise in the environs of a military base. The means are given to relate various artillery pieces to a TNT equivalent and to normalize the overpressure from detonating various quantities of TNT to the overpressure from the detonation of one pound of TNT. Buried charges and aboveground detonations are also considered. Various ways to predict probable blast overpressure and frequency spectrum as a function of distance are discussed.

(U)

(Modified author abstract)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD- 772 896 6-5

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILL

Automated Scheduling of Maintenance Events:  
Status of Fitzsimons Hospital Study.

(U)

DESCRIPTIVE NOTE: Final rept.,

DEC 73 139P Vokac, Thomas J. ; Colver,  
Richard J. ;

REPT. NO. CERL-TR-A-22

PROJ: RDT/E-4-A-062103-A-891

TASK: 4-A-062103-A-89104

UNCLASSIFIED REPORT

DESCRIPTORS: \*Hospitals, \*Scheduling,

\*Maintenance, Computers, Computer programming,

Data processing

IDENTIFIERS: Computer aided analysis

(U)

(U)

The report documents the collection and analysis of equipment maintenance data at Fitzsimons Army General Hospital, Denver, Colorado, between Jul 1972 and February 1973. The report contains initial data collection and analysis for planning, scheduling, and monitoring of maintenance resources and their utilization through application of a Construction Engineering Research Laboratory (CERL)-developed maintenance simulation system, Onsite Management Records System (OMRS); and analyzing maintenance data to determine availability/reliability (A/R) of critical systems using A/R programs developed for analysis of Ballistic Missile Defense support systems. Results included identification of equipment and required maintenance events, preliminary scheduling runs, and the identification of requirements for effective, onsite A/R analysis. (Author)

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AD- 772 896

UNCLASSIFIED

PAGE

252

AD- 772 895

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD- 772 895 11/9

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILL

Mechanical Behavior of Viscoelastic  
Materials.

(U)

DESCRIPTIVE NOTE: Final rept.,

DEC 73 86P Naus, Dan ;

REPT. NO. CERL-TR-M-68

PROJ: DA-4-A-062112-A-891

TASK: 4-A-062112-A-891

UNCLASSIFIED REPORT

DESCRIPTORS: \*Polymers, Mechanical properties,

Polymethyl methacrylate, Tensile properties,

Creep, Load/forces), Fracture (Mechanics),

Crack propagation, Structural properties,

Deformation

IDENTIFIERS: Stress relaxation

(U)

(U)

IAC ACCEPTANCE NUMBER: PL-021735

IAC DOCUMENT TYPE: PLASTIC -MICROFICHE--

This investigation was thus conducted to provide a better understanding of viscoelastic material behavior. The behavior of a typical viscoelastic material, PMMA, was evaluated when subjected to various load rates, magnitude of load, or magnitude of strain. The results indicate that the behavior of the visco-elastic material, PMMA, (i.e., tensile creep, stress relaxation, and fracture toughness properties) is dependent on time, stress, and strain. The results also indicate that viscoelastic materials are able to adsorb large amounts of energy, exhibit large tensile strains prior to fracture, exhibit increasing ultimate tensile strength values with increased rates of deformation, relax to relieve stresses resulting from induced displacements, provide resistance to crack propagation. Also, a qualitative fracture model was developed using rheological models in conjunction with a rigid-plastic cracked strip model to describe material behavior near a flaw. The model was related to the tensile and fracture behavior of viscoelastic materials. (Author, modified-PL)

(U)

IAC SUBJECT TERMS: P--(U)PMMA-Fracture behavior,  
PMMA-Tensile stress/strain, ZZ Unlimited;

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 090062

AD- 772 894 13/2 15/5

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILLTechnical Evaluation Study of the  
Consolidated Field Maintenance Facility at  
Fort Bragg, N.C.

(U)

DESCRIPTIVE NOTE: Final rept.,  
DEC 73 38P  
L. :Schomer, P. :Eid, M. ;  
REPT. NO. CERL-TR-E-15

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Air pollution, \*waste management,  
\*water pollution, \*Military facilities, Control,  
Noise pollution, Solid wastes, Wastes, Cost  
estimates, Oils, Gasoline, Storage tanks,  
Paints, Waste water, Dust control, North  
Carolina

IDENTIFIERS: Fort Bragg  
(U)  
(U)

The study identifies potential pollution sources  
and control equipment requirements for the proposed  
Consolidated Field Maintenance Facility at  
Fort Bragg, N.C. An inventory determined  
processes and operations which were to be  
incorporated in the new facility. Air pollution,  
water, noise, and solid wastes which might emanate  
from the facility are identified. Recommendations  
are given to provide pollution control for the  
following: gasoline storage tanks, paint spray  
booths, woodworking shops, waste oils and lubricants,  
washrack waste water, dynamometers, and body shop.  
(Author)

(U)

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD- 772 893 13/2 15/5

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILLTechnical Evaluation Study, Solid Waste  
Generation and Disposal, Watervliet Arsenal,  
Watervliet, N.Y.

(U)

DESCRIPTIVE NOTE: Final rept.,  
JAN 74 24P Rigo, H. G. ;  
REPT. NO. CERL-TR-E-7

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Solid waste disposal, \*Incinerators,  
\*Military facilities, Boilers, Air pollution,  
Cost estimates, Electrostatic precipitation,  
Control, New York

IDENTIFIERS: Heat recovery, Design, Watervliet  
Arsenal  
(U)  
(U)

The study was initiated to evaluate the solid waste  
disposal problems at Watervliet Arsenal,  
Watervliet, New York and to develop design  
criteria for the disposal of the solid waste  
generated on the base. Since a design had recently  
been completed for a new incinerator plant for the  
Arsenal, a major portion of the study was to  
evaluate the proposed design. A technology review  
was conducted, applicable standards were evaluated,  
and analysis of the waste stream was performed.  
The applicability of boiler conversion, recycle  
techniques and landfill processes were examined.  
The abatement method selected for the ultimate  
disposal of the waste was power recovery  
incineration. This decision was based on the  
relative life cycle cost of the alternatives  
considered and on the reliability of specific furnace  
configurations. Design criteria were prepared for  
modifying the existing incinerator design to  
incorporate a package boiler and to modify the air  
pollution control scheme from low energy scrubbing to  
an electrostatic precipitator. (Author)

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AD- 772 894

UNCLASSIFIED

PAGE

253

AD- 772 893

UNCLASSIFIED

099062

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD- 771 909 13/13

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILLEvaluation of Projects for Counter-  
Seasonality Measures.

(U)

DESCRIPTIVE NOTE: Final rept.,

NOV 73 33P Halpin,D. ;Melin,J. ;

Neathammer,R. ;

REPT. NO. CERL-TR-P-15

PROJ: DA-4-A-062112-A-891

UNCLASSIFIED REPORT

DESCRIPTORS: \*Construction, \*Seasonal variations,  
Cold weather, Employment, Labor, Scheduling,  
Decision making, Bibliographies (U)

IDENTIFIERS: \*Construction seasonality,  
\*Uninterrupted construction, Critical path  
methods, Computer aided analysis (U)

The report addresses the Corps of Engineers' response to seasonality in construction, and develops a method which allows for the evaluation of project selection in implementing measures to combat seasonal effects. The evaluation is based on the project's network representation and its sensitivity to various start dates and counter-seasonality methods. (U)

(Modified author abstract)

AD- 771 909

UNCLASSIFIED

PAGE

254

AD- 771 908

UNCLASSIFIED

099062

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD- 771 908 11/4 13/3

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILLCompression Characteristics and Structural  
Beam Design Analysis of Steel Fiber  
Reinforced Concrete.

(U)

DESCRIPTIVE NOTE: Final rept. Jul 72-Jan 73,

DEC 73 43P

REPT. NO. CERL-TR-M-62

PROJ: DA-4-A-664717-D-895

TASK: 4-A-664717-D-89504, 4-A-664717-D-89523

UNCLASSIFIED REPORT

DESCRIPTORS: \*Reinforced concrete, Steel, Fiber  
reinforcement, Compression, Strength,  
Beams(Structural), Modulus of elasticity (U)

IDENTIFIERS: Mortars(Material) (U)

The report studies the effect of steel fibers on the static compression strength of concrete and mortar. Using 6 x 12 in., 4 x 8 in., and 3 x 6 in. cylinders, 180 tests were conducted on three different mixes: sand, 3/8 in. maximum aggregate, and 3/4 in. maximum aggregate. Data that indicate the strength of the fiber concrete may vary inversely with the sand content. Values for Young's modulus and Poisson's ratio for the various fiber percentages are also given. It is suggested that fibers can be used economically in flexural members. A cost comparison of a reinforced concrete beam with stirrups versus a reinforced concrete beam with fibers with no stirrups is presented. (Modified author abstract) (U)

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062  
AD- 771 906 11/6

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILL

Directional Transformation in Steel--Texture  
Behavior and Martensite Morphology.

(U)

DESCRIPTIVE NOTE: Final rept.,  
NOV 73 25P Kim, Y. G.; Quattrone, R.;  
Wayman, C. M.;  
REPT. NO. CERL-TM-W-58  
PROJ: DA-4-A-061101-A-91-D

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Steel, \*Fiber metallurgy,  
Transformations, Directional, Martensite,  
Austenite, Deformation, Grain  
structure(Metallurgy)  
IDENTIFIERS: Steel 2 Mn 27Ni

(U)  
(U)

IAC ACCESSION NUMBER: MCIC-089247  
IAC DOCUMENT TYPE: MCIC -HARD COPY--

Previous work has shown that certain Fe-Ni-Mn alloys may be suitable for producing an aligned martensite. These alloys are austenitic at room temperature and transform into lath martensite with low Ms and Md temperatures. The work is concerned with the texture behavior of the austenite in Fe-27% Ni-2% Mn and the morphology of the martensite in Fe-2% Ni-2% Mn. The austenitic deformation texture at 200C, 400C, 600C and 800C was found to be (100) (011), which is reported to be a typical deformation texture for bcc metals, but is not known to have ever been previously reported for a fcc material. (Modified author abstract)

(U)

IAC SUBJECT TERMS: M--(U)FE-25NI, FE-27NI, MANGANESE  
ADDITION, AUSTENITE, MARTENSITE, DEFORMATION, TEXTURE,  
SHEAR STRESS, ROLLING, ANNEALING, TRANSFORMATION, ROLLING  
TEMPERATURE, MICROSTRUCTURE, PHOTOMICROGRAPHS.;

AD- 771 906

UNCLASSIFIED

PAGE

255

AD- 771 178

UNCLASSIFIED

099062

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062  
AD- 771 178 13/13

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILL

Automated Design and Construction Progress  
Reporting Procedures. Volume I.

(U)

DESCRIPTIVE NOTE: Interim technical rept. no. 4, Apr 72-  
Oct 73.  
DEC 73 75P Lapp, Roger L.; Poskus,  
Udis R.;  
REPT. NO. CERL-IR-A-23  
PROJ: DA-4-A-062103-A-891  
TASK: 4-A-062103-A-89106

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Military engineering, \*Reports,  
\*Army, \*Automation, \*Methodology, Computer  
programming, Construction, Vocabulary, Data bases,  
Data acquisition, Classification, Output, Input,  
Economic analysis, Forms(Paper)  
IDENTIFIERS: Recommendations

(U)  
(U)

The report describes progress to date in automating design and construction progress reporting procedures for Army constructed military facilities. An analysis of the major reports used by the Corps of Engineers in managing design and construction is presented. 350 data terms have been selected for inclusion in an automated data base. 265 of these data elements have been included in ten output reports which comprise a basic reporting system. The data elements are related herein to the output reports in which they appear by an element-report matrix. The data elements are defined in a data dictionary. Supporting the data dictionary is a set of code tables for those data terms which are ordinarily reported in coded form.

(U)

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099052

AD- 771 160 1'S 9/2

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILLComputer Program for the Finite Element  
Analysis of Concrete Airfield Pavements.

(U)

DESCRIPTIVE NOTE: Final rept.,

NCV 73 92p Eberhardt, A. C.; Willmer,

J. L.;

REPT. NO: CERL-TR-5-26

PROJ: DA-4-A-664717-D-895

TASK: 4-A-664717-D-R9504

## UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: Report on the Dynamic Interaction  
of Aircraft Pavement Systems.DESCRIPTORS: \*Airfields, \*Pavements, \*Concrete,  
\*Computer programs, Local (Forces), Landing  
gear, FORTRAN, Mathematical models, Stresses,  
Strain (Mechanics), Statics

(U)

IDENTIFIERS: CDC 6000 computers, IBM 360  
computers, UNIVAC 1108 computers, Finite element  
analysis

(U)

The report describes a digital computer program for the finite element analysis of jointed concrete airfield pavements. The program is designed to analyze the static response of a pavement to heavy multi-wheel aircraft gear loads. An equivalent plate theory is used to determine the effect of a stabilized base on a structural overlay on the total response of a pavement system. The subsoil is modeled as a Winkler foundation, i.e., only forces and deformations in the vertical direction are considered. (Modified author abstract)

(U)

AD- 771 160

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PAGE

256

IAC SUBJECT TERMS: P--(U)Pollutants review-Techniques  
review, Pollutants-Survey, Pollutants-Computer  
AD- 771 062

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## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD- 771 062 13/2

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILLEnvironmental Impact Assessment Study for  
Army Military Programs.

(U)

DESCRIPTIVE NOTE: Interim rept. Apr-Dec 72,

DEC 73 172p Jain, R. K.; Lewis, F. A.

; Urban, L. V.; Balbach, H. E.;

REPT. NO: CERL-IR-0-13

PROJ: DA-4-A-162121-A-896

## UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: Report on Procedures for  
Evaluating Environmental Impacts of All Military  
Programs.DESCRIPTORS: \*Environments, \*Pollution, \*Army,  
Assessment, Impact, Computer programming,  
Methodology, Ecology, Public health, Air  
pollution, Water pollution, Economics, Sociology,  
Noise pollution, Transportation

(U)

IDENTIFIERS: Environmental Impact  
Statements

(U)

IAC ACCESSION NUMBER: PL-900435

IAC DOCUMENT TYPE: PLASTIC -MICROFICHE--

The development of systematic procedures that can be used by personnel at all levels of the Army to prepare and review realistic and meaningful environmental impact assessments and statements for Army military programs are presented. Army programs were grouped into the Army functional areas of construction, research and development, real estate acquisition or outleases of land, mission change, procurement, training, administration and support, industrial activities, and operation, maintenance and repair. A systematic procedure was formulated whereby basic activities associated with implementing Army programs were developed for each functional area. A computer-aided assessment system was developed for identifying potential environmental impacts by relating the Army activities from the functional areas to attributes contained in eleven technical areas of specialty used to describe the environment.

(U)



## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD- 770 927 12/3 15/5 15/7

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILLGuidance for Selection of Equipment  
Fleet.

(U)

DESCRIPTIVE NOTE: Technical rept.,  
 OCT 73 38P Road, Omar E. , Jr;  
 REPT. NO. CERL-TR-P-18  
 PROJ: DA-4-A-664717-D-895

## UNCLASSIFIED REPORT

DESCRIPTORS: \*Army operations, \*Construction  
 equipment, \*Costs, Earth handling equipment, Road  
 building equipment, Decision making, Production  
 control, Mathematical models  
 IDENTIFIERS: Cost estimating relationships

(U)  
(U)

The report presents a guide for equipment fleet  
 selection that will enable military engineers to  
 accomplish their Theater of Operations  
 construction projects at the lowest cost to the  
 taxpayer. The equipment selection guide is  
 presented in card format, which, after review and  
 field-testing by the Engineer School, should be  
 distributed to field engineers. The report also  
 presents the consideration, methodology, and models  
 used in the development of this equipment selection  
 card. (Author)

(U)

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD- 770 395 7/4

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILLAn Extended Evaluation of a Particulate  
Precipitating Heat Transfer Surface.

(U)

DESCRIPTIVE NOTE: Technical manuscript,  
 NOV 73 285P Rigo, H. G. ;  
 REPT. NO. CERL-TM-E-20

## UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: Doctoral thesis.  
 DESCRIPTORS: \*Particles, \*Scrubbers, Aerosols,  
 Separation, Heat transfer, Surfaces, Kinetic  
 energy, Phase studies, Reynolds numbers, NAVIER  
 STOKES equations, Diffusion, Computer programs,  
 Gas flow, Theses  
 IDENTIFIERS: \*Air pollution control

(U)  
(U)

The laminar Navier-Stokes equations were solved  
 for Reynolds Numbers ranging between zero and  
 3000,000 over a typical element in an array of  
 laterally disposed cavity bearing, piecewise  
 continuous, front step-back steps. An inertial  
 particle tracking model was coupled with the flow  
 field solution to predict collection efficiency.  
 Qualitative experimental confirmation of the flow  
 field was obtained from flow visualization  
 experiments. Experimental analysis of the  
 fractional aerosol capture efficiency of the flow  
 obstruction indicates that for small particles in  
 turbulent flow, diffusion governs collection. The  
 heat transfer effectiveness of the geometry was  
 estimated within 6% of the experimental values  
 using a novel coupling of the Chapman-Korst  
 cavity flow model and the equivalent wedge similarity  
 solution. (Modified author abstract)

(U)

AD- 770 927

UNCLASSIFIED

PAGE

257

AD- 770 395

UNCLASSIFIED

099062

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD- 770 374 5/1

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILL

An Integrated Approach to Construction  
Management.

(U)

DESCRIPTIVE NOTE: Final rept.,

NOV 73 160P Richards, J. L. ;

REPT. NO. CERL-TM-P-19

UNCLASSIFIED REPORT

DESCRIPTORS: \*Construction, \*Management planning and control, Decision making, Multiple operation, Scheduling, Dynamic programming, Computer programming, Man machine systems, Costs, Mathematical models, Matrix mathematics, Stochastic processes, Optimization  
IDENTIFIERS: \*Construction management, \*Critical path method, Network analysis (Management)

(U)

(U)

The research developed an integrated approach to construction management that provides an optimal decision-making tool for improving the cost-effectiveness of management organizations. The construction problem is defined in terms of the management processes of planning, scheduling, and controlling construction operations. These processes evaluate the time-cost tradeoffs of alternative courses of action when resources are limited. The integrated approach reflects the true state of the decision-maker in hierarchical management organizations of dynamic construction systems. A new network-based project analysis model was developed that integrates the total costs of construction operations. A rigorous mathematical formulation of the model provides a basis for an optimal solution method using an implicit enumeration, computer routine. The integrated approach was applied to a sample project to yield optimal project and resource schedules. (Author)

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AD- 770 374

UNCLASSIFIED

PAGE

258

AD- 769 600

UNCLASSIFIED

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD- 769 600 13/11 15/5

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILL

Theater of Operations Water Supply--  
Feasibility of Manufacturing and Using  
Plastic Pipe in the Theater of  
Operations.

(U)

DESCRIPTIVE NOTE: Technical rept.,

OCT 73 171P

REPT. NO. CERL-TR-E-16 Mikucki, Walter J. ;

PROJ: DA-4A-664717-D-895

UNCLASSIFIED REPORT

DESCRIPTORS: (\*Water pipes, Plastics),  
(\*Extrusion, Water pipes), Manufacturing, Pipe  
fittings, Feasibility studies, Pilot plants,  
Military operations, Tactical warfare,  
Utilization  
IDENTIFIERS: Plastic pipes

(U)

(U)

IAC ACCESSION NUMBER: PL-020222

IAC DOCUMENT TYPE: PLASTIC -HARD COPY--

This study determined the feasibility of manufacturing and using plastic pipe and fittings for potable water distribution systems in the theater of operations. Available plastic pipe, fitting production, fabrication methods, and equipment were reviewed. Concepts were developed for extruding plastic pipe up to 6 in. in diameter and fabricating fittings from pipe stock. Comparison of shipping weight and volume, material cost, and installation manhours for purchased metal, plastic pipe, and theater of operations-produced plastic pipe was made using 1500-man and 3000-man troop camp bills of materials as a basis. The comparison showed that the portable plant concept was most economical and that the use of plastic pipe would significantly reduce installation manhours. (Author, modified-PL)

(U)

IAC SUBJECT TERMS: P--(U)Plastics-Pipes,  
Thermoplastics-Extrusion, Plastics-Fabrication,  
Thermoplastics-Military application, Z2 Unlimited.;

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099002

AD- 768 721 13/4 20/11 9/2

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN ILL

Documentation of Extended Analysis and Planning Subroutines for Onsite Management Records System (O'RSI) - September 1972.

DESCRIPTIVE NOTE: Technical rept.,  
SEP 73 125P Pritsker, A. Alan B. ;  
Trent, Robert L. ; Seum, Charles S. ;  
REPT. NO. CERL-TR-1-21

UNCLASSIFIED REPORT

DESCRIPTORS: (\*Maintenance, Logistics planning),  
(\*Management information systems, Computer programs), Subroutines, FORTRAN, Information retrieval, Scheduling, Antimissile defense system  
IDENTIFIERS: Safeguard antiballistic missile systems (U)

The objective of the project is to develop a computerized maintenance logistics data system, specifically to support onsite operation of the Tactical Support Equipment (TSE) complements of the SAFEGUARD Ballistic Missile Defense System. The development has been implemented in two phases: the first phase directed at providing automated methods for analyzing and forecasting maintenance resource requirements, the second phase at onsite operational scheduling of maintenance manpower and record-keeping. The computer routines to achieve the first phase of the project were documented in April 1972. At that time, recommendations for improvements in the method and efficiency of the procedures were made. The report documents the extensions and improvements to the routines and records the status of the development as of 1 September 1972. Detailed descriptions of program variables, subprograms, and comment statements are provided. Input formats are specified and examples of output reports are presented. (Author) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD- 768 721 13/4 20/11 9/2

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN ILL

Stiffness Matrix Reduction for Large Structural Systems Using Cholesky Decomposition.

DESCRIPTIVE NOTE: Interim rept.,  
OCT 73 29P Holze, Gordon ;  
REPT. NO. CERL-IR-S-24  
PROJ: DA-4-A-664717-D-895  
TASK: 4-A-664717-D-89501

UNCLASSIFIED REPORT

DESCRIPTORS: (\*CONTAINERS, STRUCTURAL PROPERTIES),  
MATRICES(MATHEMATICS), LOADS(FORCES), COMPUTER PROGRAMS  
IDENTIFIERS: \*STIFFNESS METHODS, MATRIX METHODS,  
\*STRUCTURAL ANALYSIS, DEGREES OF FREEDOM, \*SHIPPING  
CONTAINERS, FINITE ELEMENT ANALYSIS, CHOLESKY  
DECOMPOSITION (U)

Using a method similar to that proposed by Rosen and Rubinstein, a computer program was written to reduce the stiffness matrix of a multi-degree of freedom system down to an equivalent stiffness matrix involving a smaller number of degrees of freedom. Since this method uses Cholesky decomposition instead of the more common matrix inversion, it is useful for substructure problems in which a large number of degrees of freedom are to be condensed and eliminated. The computer program in Appendix B is most efficient when used for a large degree of freedom system with a sparse stiffness matrix. An example problem is explained in Appendix C to demonstrate the use of the program. (Author) (U)

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DDC REPORT	BIBLIOGRAPHY	SEARCH CONTROL NO.	099062	DDC REPORT	BIBLIOGRAPHY	SEARCH CONTROL NO.	099062
AD- 768 720	13/13	15/3.1	13/3	AD- 768 098	13/3	15/5	
ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN ILL				ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN ILL			
Metallic Shear Walls for BMD Ground Support Systems.				CMP Instructions, Specifications, and Example.			
(U)				(U)			
DESCRIPTIVE NOTE: Interim rept., AUG 73 32p Quattrone, R. ;Mennitt, R. ; REPT. NO. CERL-IR-V-32 PROJ: IAO-CE-CERL-71-1				DESCRIPTIVE NOTE: Technical rept., SEP 73 108P Johnson, E. R. ; REPT. NO. CERL-TR-P-9 PROJ: DA-4-A-664717-D-895			
UNCLASSIFIED REPORT				UNCLASSIFIED REPORT			
DESCRIPTORS: (*BUILDINGS, WALLS), (*WALLS, METAL PLATES), (*ANTIMISSILE DEFENSE SYSTEMS, LAUNCHING SITES), STEEL, SHEAR STRESSES, MODULUS OF ELASTICITY, COSTS, ELECTROMAGNETIC PULSES, ELECTROMAGNETIC SHIELDING IDENTIFIERS: *HARDENED INSTALLATIONS, *SHEAR WALLS, COMPUTER AIDED DESIGN				DESCRIPTORS: (*CONSTRUCTION, *SCHEDULING), (*MILITARY FACILITIES, CONSTRUCTION), LOGISTICS, CONSTRUCTION MATERIALS, EARTH HANDLING EQUIPMENT, TIME STUDIES, PLANNING, MANAGEMENT PLANNING AND CONTROL, COMPUTER PROGRAMS IDENTIFIERS: CMP(CONSTRUCTION MANAGEMENT PROCEDURES), CONSTRUCTION MANAGEMENT PROCEDURES, COMPUTERIZED SIMULATION			
(U)				(U)			
The report considers the economic feasibility of using metallic interior shear wall elements in place of conventional reinforced concrete shear wall elements in hardened facilities. A simplified, aboveground two story building is designed using both conventional concrete and metallic shear wall elements. Five combinations of weapon yield and overpressure are used to size the building elements. Three wall configurations are considered: reinforced concrete, 12x yield strength steel (A-36), and high yield strength steel (A-514). Total facility and shear wall costs are compared. Based upon a somewhat limited use of metallic materials, it is nonetheless clearly indicated that the use of metallic interior shear walls can substantially reduce facility structural costs by as much as nine percent at low overpressures. Comparing the in-place wall costs, savings on the order of 50 percent are possible under some design requirements and metallic material properties. (Author)				The problem was to develop a construction scheduling model for the Army Functional Component System (AFCS) which could be used by engineers in the field, theater-of-operation planners, and base development planners. To fulfill this requirement a Facility Scheduling Model and an Installation Tabulation Model were developed. Also included are instructions for architects and engineers and an example of the model. The Installation Tabulation Model duration was compared with duration derived by the CERL Construction Management Procedure (CMP) Computer Simulation Model. The comparison results in a recommended 1.35 multiplication factor for the Installation Tabulation Model. (Author)			
(U)				(U)			

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD- 767 531 13/3 11/4

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILL

Polymer Impregnated Fibrous Cellular  
Concrete for BMD Facilities.

(U)

DESCRIPTIVE NOTE: Technical rept.,

JUL 73 23p Price, Eddie Lott, J. L. ;

REPT. NO. CERL-TR-W-31

PROJ: DA-4-A-062104-A-880

TASK: 4-A-062104-A-88002

UNCLASSIFIED REPORT

DESCRIPTORS: (\*REINFORCED CONCRETE, IMPREGNATION),  
REINFORCING MATERIALS, STEEL, FIBERS, FOAM, POLYESTER  
PLASTICS, STYRENE PLASTICS, STRUCTURAL PROPERTIES,  
COMPOSITE MATERIALS (U)

IDENTIFIERS: CELLULAR CONCRETES, CONCRETE POLYMER  
COMPOSITES (U)

The objective of the study was to evaluate the  
structural behavior of Polymer-impregnated, fibrous  
cellular concrete (PFCC) elements to see if further  
consideration of the use of such material systems is  
warranted for BMD facilities. A fibrous cellular  
concrete was impregnated with polyester resin to  
obtain polymer-impregnated, fibrous cellular concrete  
(PFCC) test specimens. Structural behavior was  
examined by testing simply supported beams; material  
behavior was determined by compression cylinder  
tests. Flexural behavior was evaluated based on  
the observed behavior of PFCC and steel reinforcing  
bars. (Modified author abstract) (U)

AD- 767 531

UNCLASSIFIED

PAGE

261

AD- 767 530

UNCLASSIFIED

099062

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD- 767 530 1/5

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILL

Technological Forecasting: A Case Study of  
Long-Term Requirements for Rigid Airfield  
Pavement Systems.

(U)

DESCRIPTIVE NOTE: Technical rept.,

AUG 73 54p Pananos, William J. ;

REPT. NO. CERL-TR-A-19

PROJ: DA-4-A-062112-A-891

TASK: 4-A-062112-A-89112

UNCLASSIFIED REPORT

DESCRIPTORS: (\*LANDING FIELDS, \*PAVEMENTS), DESIGN,  
MANAGEMENT PLANNING AND CONTROL, CONSTRUCTION,  
OPERATION, MAINTENANCE (U)

IDENTIFIERS: FORECASTING (U)

The report presents the in-action example of the  
Delphi method of technological forecasting, which  
involves polling expert opinion. Experts in the  
planning, design, construction, and operation of  
airfields were polled to develop a forecast of  
technical capabilities in those areas. The results  
demonstrate how the wide range of information  
obtainable from expert opinion can be conveniently  
presented to planners. An analysis of the  
convergence of opinion after two rounds of  
questioning indicates that more than one round may be  
unnecessary to obtain the subjective type of  
information discussed in the forecast.

(Author) (U)

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD- 767 529 13/2 15/5 5/1

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILLA Data-Based Methodology for Specifying  
Construction Project Durations.

(U)

DESCRIPTIVE NOTE: Technical rept.,  
AUG 73 24P Halpin, D. W. ; DeLong, C.  
E. ;

REPT. NO. CERL-TR-P-14

## UNCLASSIFIED REPORT

DESCRIPTORS: (\*CONSTRUCTION, \*SCHEDULING), (\*MILITARY FACILITIES, CONSTRUCTION), CONTRACTS, MANPOWER, TIME STUDIES, CONSTRUCTION MATERIALS, LARGE UNITS, MILITARY PROCUREMENT, LEAD TIME, PLANNING, MATHEMATICAL MODELS, DATA PROCESSING, MANAGEMENT PLANNING AND CONTROL IDENTIFIERS: NEGOTIATIONS, \*CONTRACT ADMINISTRATION, \*CONTRACT TERMS, COST OVERRUNS (U)

The report presents a method of determining the construction contract performance times for military construction projects. This method is based on information that is regularly reported as feedback during the execution of a construction contract for military construction, Army projects. By organizing the data from the manpower-utilization feedback reports, a model is formulated and mathematically derived. An example of data reduction is presented, and the results of applying the methodology to these projects are reported. A proposal of implementation of the methodology in U.S. Army Corps of Engineers' district offices is presented. (Author)

(U)

AD- 767 529

UNCLASSIFIED

PAGE

262

AD- 766 725

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## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD- 766 725 15/5 5/1

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILL

Construction Time OVERRUNS.

(U)

DESCRIPTIVE NOTE: Technical rept.,  
AUG 73 78P Halpin, D. W. ; Neathammer,  
R. D. ;

REPT. NO. CERL-TR-P-16

PROJ: DA-4-DW-78012-AOK-1

## UNCLASSIFIED REPORT

DESCRIPTORS: (\*CONSTRUCTION, \*TIME STUDIES), (\*MILITARY FACILITIES, \*CONTRACTS), LANDING FIELDS, BUILDINGS, ARMY PROCUREMENT, REGRESSION ANALYSIS, ANALYSIS OF VARIANCE IDENTIFIERS: CONTRACT TERMS (U)

The actual time required to complete construction on military facilities is often greater than the time contractually specified. There are several reasons for these 'overruns' or time extensions: designer changes/errors, user changes, weather, strikes, late deliveries, etc. These time extensions were studied by examining a sample of contracts throughout CONUS from the time period July 1967 - June 1970.

Based on the 221 contracts evaluated it is estimated that for an average contract, an additional 27% of the specified construction time will be allowed as time extensions. (Author)

(U)

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099052

AD- 766 706 13/2 13/5 1/5

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILLKeyed Joint Performance Under Heavy Load  
Aircraft.

(U)

DESCRIPTIVE NOTE: Technical manuscript,  
AUG 73 14P Rice, John L. ;

REPT. NO. CERL-TM-S-13

## UNCLASSIFIED REPORT

DESCRIPTORS: (\*JOINTS, PERFORMANCE(ENGINEERING)),  
(\*PAVEMENTS, JOINTS), (\*JET TRANSPORT PLANES, AIRCRAFT  
LANDINGS), LOADS(FORCES), RUNWAYS, MODEL TESTS, (U)  
CONCRETE (U)  
IDENTIFIERS: \*KEYED JOINTS, C-5A AIRCRAFT, C-5  
AIRCRAFT (U)

The poor performance of keyed longitudinal  
construction joints in rigid airfield pavements under  
simulated C-5A traffic operation is presented.  
The data presented were collected from a full scale  
test track pavement supported on a low strength  
subgrade. No deficiencies in materials or  
construction were found which would have adversely  
affected the performance of the keyed joint. The  
failures observed in the keyed joint demonstrate that  
a balanced design will result using the Corps of  
Engineers keyed joint dimensions. (Author) (U)

AD- 766 706

UNCLASSIFIED

PAGE

263

AD- 766 299

UNCLASSIFIED

099062

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD- 766 299 8/13 19/6

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILLSoil Stabilization Investigation for 155 mm  
Towed Howitzer Firing Pads.

(U)

DESCRIPTIVE NOTE: Technical manuscript,  
JUL 73 45P Kelly, William T. ;

REPT. NO. CERL-TM-M-53

## UNCLASSIFIED REPORT

DESCRIPTORS: (\*SOILS, STABILIZATION),  
(\*FOUNDATIONS(STRUCTURES), \*HOWITZERS), SUPPORTS,  
CALCIUM OXIDES, FEASIBILITY STUDIES, MOISTURE,  
COMPRESSIVE PROPERTIES, FLEXURAL STRENGTH,  
AGING(MATERIALS), MODULUS OF ELASTICITY, LOADS(FORCES), (U)  
DEFORMATION, REGRESSION ANALYSIS, ACCEPTABILITY (U)  
IDENTIFIERS: \*SOIL STABILIZATION (U)

The 155 mm Howitzer is placed in its firing  
configuration by jacking it off its road wheels onto  
a base plate support. The trails are spread and  
the trail spades are dug into the ground. During  
normal firing, the recoil of the weapon is absorbed  
by the base plate, recoil mechanism, and trail  
spades. Frequently, the Howitzer must be  
positioned in soils which have low shear strength  
and/or high water content. When the Howitzer  
recoils, the trail spades shear the soil permitting  
excessive lateral displacement. This can lead to  
inaccurate artillery fire or even a cease fire  
condition during a fire mission. The objective of  
this study was to determine the feasibility of using  
lime-soil stabilization as a technique to provide a  
stable firing platform for the 155 mm Howitzer.  
Variables evaluated included lime content, moisture  
content, compactive effort, and curing time; all  
factors bearing on field construction and operations.  
(Modified author abstract) (U)

AD- 766 706

UNCLASSIFIED

PAGE

263

AD- 766 299

UNCLASSIFIED

099062

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD- 765 477 5/10

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILL

Dining Facility User-Attitudes and  
Environmental Design Research at Travis  
AFB, California.

(U)

DESCRIPTIVE NOTE: Preliminary rept.,  
JUN 73 86p Gibbs, W. , Jr.; Cramer, R.  
W. ;

REPT. NO. CERL-PR-D-5  
PROJ: DA-1-J-662713-AJ-45, DA-4-A-062103-A-891  
TASK: 4-A-062103-A-89107

UNCLASSIFIED REPORT

DESCRIPTORS: (\*FOOD DISPENSING, \*AIR FORCE), (\*AIR FORCE  
PERSONNEL, \*ATTITUDES (PSYCHOLOGY)), MILITARY FACILITIES,  
ENVIRONMENT, DESIGN, SOCIOMETRICS, MEASUREMENT,  
QUESTIONNAIRES, PHOTOGRAPHY, VISUAL INSPECTION (U)  
IDENTIFIERS: INTERVIEW, TIME LAPSE PHOTOGRAPHY (U)

The report presents the research to date on user  
satisfaction as it relates to the social and physical  
environments of three dining facilities at Travis  
Air Force Base, California. Research  
Stage 1 consisted of the measurement of users'  
attitudes and behaviors in the three existing dining  
environments. Data was collected from 296  
questionnaires, 125 interviews, time-lapse  
photography, and trained observers. Research  
Stage 2, the development of renovation designs,  
utilized the resulting relationships by translating  
the information into designer-usable statements or  
hypotheses. Negative attitudes were linked to  
specific key stations of the existing facility.  
These attitude-key station hypotheses were the  
basis for the development of specific design  
intentions. Research Stage 3, will be a post-  
renovation evaluation. (Modified author  
abstract)

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AD- 765 477

UNCLASSIFIED

PAGE

264

AD- 765 476

UNCLASSIFIED

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD- 765 476 10/2

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILL

Advanced Electrical Power Generation and  
Distribution Concepts for Military  
Facilities.

(U)

DESCRIPTIVE NOTE: Preliminary rept.

JUN 73 133p  
REPT. NO. CERL-PR-E-13  
PROJ: DA-4-A-062112-A-891  
TASK: 4-A-062112-A-89102

UNCLASSIFIED REPORT

DESCRIPTORS: (\*ELECTRIC POWER PRODUCTION, MILITARY  
REQUIREMENTS), PREDICTIONS, POWER  
PLANTS (ESTABLISHMENTS), POWER EQUIPMENT, GENERATORS,  
TRANSMISSION LINES, ABUNDANCE (U)

The report describes probable technical advancement  
of electrical power generation systems in the 1980-  
1990 time period for application in fixed or semi-  
fixed military facilities in the power range of 250  
kw to 50,000 kw. Subjects covered include  
commercial power reliability, uninterruptible power  
system, conventional steam, diesel, gas turbine  
(open and closed cycle) generators and  
distribution systems for currently available  
equipment. Advanced power systems include nuclear  
reactors, batteries and fuel cells,  
magnetohydrodynamic systems, fusion systems, solar  
power systems and direct conversion systems of the  
thermoelectric and thermionic type. (Modified  
author abstract)

(U)



## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD- 765 473 13/3 13/13 16/1

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILLCost Performance Analysis of Portland  
Cement Concrete-Fibrous Polyester Concrete  
Material System (Sandwich Panels).

(U)

DESCRIPTIVE NOTE: Technical rept.,

JUL 73 75P Naus,Dan ;Plummer,Fred ;

Merritt,Ron ;

REPT. NO. CERL-TR-M-45

PROJ: DA-4-KO-78012-AOK-2

TASK: 4-KO-78012-AOK-202

## UNCLASSIFIED REPORT

DESCRIPTORS: (\*CONCRETE, COSTS), (\*UNDERGROUND  
STRUCTURES, \*SANDWICH PANELS), POLYESTER PLASTICS,  
CONSTRUCTION MATERIALS, REINFORCING MATERIALS, COMPOSITE  
MATERIALS, LOADS(FORCES), DEFORMATION, COST  
EFFECTIVENESS (U)

IDENTIFIERS: POLYESTER FIBERS, PORTLAND CEMENTS,  
HARDENED INSTALLATIONS, CONCRETE POLYMER COMPOSITES (U)

Structural and shielding costs for hardened  
facilities represent a substantial portion of the  
construction effort in both cost and time.  
Presently, the selection of a material is made a  
priori in favor of reinforced concrete and steel  
which places limitations on conceptual designs.  
Potential does exist for reducing construction time  
and cost of hardened facilities by using new material  
systems which have been successfully formulated to  
meet given functional and performance requirements.  
The material system investigated using analytical  
and experimental techniques consisted of a  
conventional portland cement concrete beam which had  
a layer of fibrous polyester concrete at the  
compression surface. The analytical results were  
used to determine the cost-performance feasibility of  
the reinforced concrete-fibrous polyester concrete  
material system. The performance analysis results  
indicate that the reinforced concrete-fibrous  
polyester concrete material system is performance  
effective when using ultimate strength design  
procedures and thus can be used to produce smaller  
and lighter weight structural elements that are more  
deployable than the conventional reinforced concrete(U)

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD- 765 420 5/10

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILLA Methodological Investigation of the Use of  
the Semantic Differential and Time-Lapse  
Photography to Measure Attitude and Behavior  
in a Dining Hall at Chanute AFB.  
(Evaluation of Occupant Interaction with  
Facility Environments).

(U)

DESCRIPTIVE NOTE: Technical rept.,

JUN 73 30P Lozar,Charles C. ;

REPT. NO. CERL-TR-D-9

PROJ: DA-4-A-062112-A-891

## UNCLASSIFIED REPORT

DESCRIPTORS: (\*MILITARY RATIONS,  
\*ATTITUDES(PSYCHOLOGY)), (\*BEHAVIOR, AIR FORCE  
PERSONNEL), TEST METHODS, QUESTIONNAIRES, PHOTOGRAPHY,  
MEASUREMENT, SEMANTICS, ENVIRONMENT (U)

The study evaluates use of (a) the semantic  
differential and (b) the time-lapse camera in  
describing attitudes and behavior in a military  
dining environment. In the first part of the study  
a semantic differential questionnaire was used to  
measure respondents' attitudes toward visual  
sequences in old and new dining halls at Chanute  
AFB, Illinois. The second part applied the  
technique of time-lapse photography to overt  
behavioral analysis in a dining hall. The  
objective was to develop the technique for overt  
behavioral analysis by describing overt behavioral  
patterns, queuing situations, conflict and accident  
areas, and table preference patterns in the food  
acquisition and eating areas. Four-second interval  
photography was employed at the noon and evening  
meals. (Modified author abstract) (U)

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD- 764 452 13/13 14/1

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILLInitial Quality and Life-Cycle Costs in  
Military Family Housing.

(U)

DESCRIPTIVE NOTE: Technical rept..

JUN 73 24P Bagby,D. Gordon ;

REPT. NO. CERL-TR-D-8

PROJ: DA-4-A-664717-D-895

## UNCLASSIFIED REPORT

DESCRIPTORS: (\*MILITARY PERSONNEL, HOUSING(DWELLINGS)),  
(\*HOUSING(DWELLINGS), \*COSTS), MAINTENANCE,  
CONSTRUCTION, ENGINEERING

(U)

The study demonstrates one approach to the problem of obtaining the best military family housing for the money. The study uses only one characteristic of the house--exterior wall material--to illustrate the approach. The same technique can be applied to other characteristics as data becomes available.

Based on exterior wall material, seven house types were established. Comparison was made of the initial quality, and life-cycle costs of houses possessing these characteristics. Estimates were made of maintenance costs for each house type over a 35-year life-span from empirical data collected in Los Alamos, New Mexico. An examination of housing sales-price data in Champaign, Illinois, produced estimates of the initial cost of each house type. Combining the maintenance and initial cost estimates provided measures of their life-cycle costs. Conclusions regarding the initial quality of the seven house types were drawn from the same housing sales-price data in the Champaign area. Finally comparisons between house types were made with respect to the initial quality and life-cycle cost of each type. The results of these comparisons provided a basis for ordering exterior wall materials for use in housing construction. (Author)

(U)

AD- 764 452

UNCLASSIFIED

PAGE

266

AD- 764 243

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## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD- 764 243 1/5 1/2

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILLAircraft-Pavement Interaction Studies.  
Phase I: A Finite-Element Model of a  
Jointed Concrete Pavement on a Non-Linear  
Viscous Subgrade (Dynamic Interaction of  
Aircraft-Pavement Systems).

(U)

DESCRIPTIVE NOTE: Preliminary rept. Jul 71-Jul 72,

JUN 73 30P Eberhardt, Arthur C. ;

REPT. NO. CERL-PR-S-19

PROJ: DA-4-A-664717-D-895

## UNCLASSIFIED REPORT

DESCRIPTORS: (\*PAVEMENTS, INTERACTIONS), (\*LANDING  
FIELDS, \*AIRCRAFT LANDINGS), CONCRETE, JOINTS,  
LOADS(FORCES), LOAD DISTRIBUTION, LANDING GEAR, LANDING  
IMPACT, NUMERICAL ANALYSIS

(U)

IDENTIFIERS: FINITE ELEMENT ANALYSIS, DYNAMIC  
RESPONSE

(U)

The report describes a finite-element procedure for analyzing multilayered concrete airfield pavements. An 'equivalent plate' theory is used to account for the increased stiffness provided by a stabilized base or a structural overlay. The stiffness is also adjusted to provide for the effects of various bond levels developed between the pavement layers. The finite-element pavement model was developed to aid the study of airfield-pavement interaction and especially to help analyze surface deformations resulting from multi-wheel aircraft loads. Pavement joints are given finite dimensions and treated as separate entities to permit more accurate determination of stress at an edge in a jointed pavement. Subsoil material can be modeled as a linear elastic, non-linear, or non-linear viscous material. (Modified author abstract)

(U)

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD- 763 912 13/2 13/3

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILL

Stabilization for Pavements. (U)

DESCRIPTIVE NOTE: Technical rept.,

MAY 73 40P Rice, J. L. ;

REPT. NO. CERL-TR-S-11

UNCLASSIFIED REPORT

DESCRIPTORS: (\*PAVEMENTS, STABILIZATION), CONCRETE,  
ASPHALT, FAILURE (MECHANICS), CRACKS, STRESSES, MODEL  
TESTS (U)IDENTIFIERS: CALIFORNIA BEARING RATIO, FLEXIBLE  
PAVEMENTS, CONCRETE PAVEMENTS (U)

Rigid and flexible pavement model tests were conducted to evaluate methods for assessing the structural benefits imparted to a pavement structure by stabilized elements. Current Corps of Engineers rigid pavement design and evaluation methods are based on stress in the concrete pavement as calculated by the Westergaard algorithm. This method appears applicable for pavements containing time and bituminous stabilized layers only. Cement stabilized layers should be evaluated by an elastic layered algorithm. The California Bearing Ratio method of design and evaluation of flexible pavement structure appeared to yield satisfactory results for flexible pavements containing stabilized elements. (Author) (U)

AD- 763 912

UNCLASSIFIED

PAGE

267

AD- 763 902

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD- 763 902 13/11

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILLPlastic Pipe for Interior and Exterior Cold  
Water Distribution Systems. (U)

DESCRIPTIVE NOTE: Technical rept.,

MAY 73 31P Mikucki, Walter J. ;

REPT. NO. CERL-TR-E-14

PROJ: CERL-OK-1

TASK: OK-1-02

UNCLASSIFIED REPORT

DESCRIPTORS: (\*PIPES, PLASTICS), WATER, ACCEPTABILITY,  
POLYETHYLENE PLASTICS, POLYVINYL CHLORIDE, ACRYLONITRILE  
POLYMERS, BUTADIENES, STYRENE PLASTICS (U)  
IDENTIFIERS: \*PLASTIC PIPES (U)

IAC ACCESSION NUMBER: PL-019647

IAC DOCUMENT TYPE: PLASTIC -HARD COPY--

This report evaluates the suitability of unreinforced plastic piping for use in small diameter (less than or equal to 4 in.), interior and exterior potable cold water distribution systems. Special consideration was directed toward the storage, handling, fabrication and installation techniques peculiar to plastic pipe. Also included are guidelines for the design and installation of plastic piping systems. Three major resins were considered: ABS, PVC and PE. PE PIPE IS SUITABLE ONLY FOR LOW PRESSURE APPLICATIONS; PVC and ABS pipe meet the study criteria of being able to withstand a pressure of 150 lb/in.2 (Author, modified-PL) (U)

IAC SUBJECT TERMS: p--(U)Pipe-Polyethylene thermoplastic, Pipe-ABS thermoplastic, Pipe-PVC thermoplastic, Water distribution system-Pipe, Chemical resistance-polyethylene, Chemical resistance-ABS, Chemical resistance-PVC, Impact strength-polyethylene, Impact strength-ABS, Impact strength-PVC, Fabrication-Pipe, Thermal expansion-Pipe, Cost-Pipe, ZZ Unlimited;

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD- 763 212 1/5 13/2

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN ILL

Proceedings, Allenton Park Conference on Systems Approach to Airfield Pavements, 23-26 March 1970 (Rational Pavement Design).

(U)

DESCRIPTIVE NOTE: Technical rept., JUN 73 507P Woodhead, R. W. ; Wortman, R. H. ;

REPT. NO. CERL-TR-P-5  
PROJ: DA-4-A-062112-A-891

UNCLASSIFIED REPORT

DESCRIPTORS: (\*RUMWAYS, PAVEMENTS), (\*PAVEMENTS, DESIGN), SYSTEMS ENGINEERING, STRUCTURAL PROPERTIES, FLEXURAL STRENGTH, CONCRETE, REINFORCED CONCRETE, FAILURE MECHANICS, SOIL MECHANICS, LOADS (FORCES), MATHEMATICAL MODELS, FRACTURE MECHANICS), SYMPOSIA IDENTIFIERS: SOIL STABILIZATION, DYNAMIC LOADS (U)

Prior to the 1970's, design methodology for airfield pavements represented empirical and theoretical extrapolation of pavement strength based on structural considerations and slab support, with judgment factors to compensate for lack of technology and differences in user requirements. With the great weight range and variations in ground control characteristics of modern aircraft, this combination of judgment and theory no longer adequately serves the pavement designer in meeting the user needs. New approaches and concepts are needed to bring pavement design up to the level of sophistication of aircraft design. Design problems must be related to needs of a wide range of users over extended periods of time and service conditions. (Modified author abstract) (U)

AD- 763 212

UNCLASSIFIED

PAGE

268

AD- 762 552

UNCLASSIFIED

099062

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD- 762 552 13/2 8/13

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN ILL

Lime-Cement Combination Stabilization. (U)

DESCRIPTIVE NOTE: Technical manuscript, MAY 73 40P Suddath, Lovick P. ;  
REPT. NO. CERL-TM-W-47

UNCLASSIFIED REPORT

DESCRIPTORS: (\*CLAY, STABILIZATION), (\*CONSTRUCTION, CLAY), DENSITY, CEMENTS, COMPRESSIVE PROPERTIES, WEAR RESISTANCE, ARMY RESEARCH IDENTIFIERS: WORKABILITY, SOIL STABILIZATION (U)

Soil stabilization is used extensively in road and airfield construction. In particular, soil-cement appears to be a favorite among the engineers. As the plasticity of a soil increases, the ability to adequately mix the cement with the soil becomes a critical factor. Also the quantity of cement required to stabilize the soil becomes excessive. The objective of the study was to determine the effect of reduced compacted density on the durability of cement stabilized clays, pretreated with lime. The reduction in density did not impair the durability of cement stabilized clay soils, which were pretreated with lime. Most of the test results indicated an improved resistance to freeze-thaw. An evaluation of the unconfined compressive strength results obtained during freeze-thaw shows that lime pretreatment improved the strengths. (Modified author abstract) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO 099062

AD- 762 551

15/5

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILL

Air Cargo Support Facilities for Army  
Airlift Operations.

(U)

DESCRIPTIVE NOTE: Technical rept.,  
MAY 73 29P Stahl, Charles S. ;  
REPT. NO. CERL-TR-4-16  
PROJ: DA-4-A-664717-D-845

UNCLASSIFIED REPORT

DESCRIPTORS: (\*AIR TRANSPORTATION, \*GROUND SUPPORT  
EQUIPMENT), (\*CARGO, AIR TRANSPORTATION), (\*ARMY  
OPERATIONS, LOGISTICS), STORAGE, HANDLING, HOISTS,  
CONVEYORS, PALLETS, CONTAINERS, FORKLIFT VEHICLES (U)

The report analyzes cargo handling systems  
currently in use at air freight terminals. The  
study includes the conventional procedures which use  
conveyors or forklifts, pallets or containers, as  
well as an experimental towline-towcard Dorteck  
system. Various operational areas within a  
terminal, such as the truck or aircraft loading and  
unloading docks, pallet buildup and breakdown  
stations, and the consolidation area are described in  
detail. (Author) (U)

AD- 762 551

UNCLASSIFIED

PAGE

269

AD- 762 194

UNCLASSIFIED

099062

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD- 762 194

13/3

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILL

The effects of Stress History on the  
Resilient Response of Soils.

(U)

DESCRIPTIVE NOTE: Technical rept.,  
JUN 73 221P Allen, John J. ;  
REPT. NO. CERL-TR-M-49  
PROJ: DA-2-O-061102-B-33-G  
MONITOR: ARDD 1-465.1-E

UNCLASSIFIED REPORT

DESCRIPTORS: (\*CONSTRUCTION MATERIALS, \*MODULUS OF  
ELASTICITY), (\*PAVEMENTS, STRESSES), RESPONSE, ROCK,  
GRAVEL, PRESSURE, DENSITY, TEST EQUIPMENT,  
LOADS(FORCES), REGRESSION ANALYSIS (U)  
IDENTIFIERS: POISSON RATIO, \*RESILIENCE, FINITE  
ELEMENT ANALYSIS, \*FLEXIBLE PAVEMENTS, \*GRANULAR  
MATERIALS (U)

The project investigated the effects of non-  
constant lateral pressures on the resilient response  
of granular materials. Three materials (crushed  
stone, gravel, and a blend of crushed stone and  
gravel) at three levels of density were subjected  
to repeated dynamic lateral and axial stresses in a  
specially designed and fabricated triaxial chamber.  
The same specimens were also tested at constant  
confining pressure and repeated dynamic axial  
stresses. The influence on the resilient response  
of the materials of such factors as stress history,  
stress pulse duration, stress sequence, density  
level, and material type was investigated.  
Predictive equations for the resilient modulus and  
resilient Poisson's ratio were developed by means  
of nonlinear regression analyses of the laboratory  
data. A sensitivity analysis of typical flexible  
pavement sections was carried out using a non-linear  
finite sensitivity analysis; it was possible to  
ascertain the significance of the laboratory results  
as regards pavements response to dynamic loading.  
(Author) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD- 762 114 13/13

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN ILL

Polymer Concrete-Reinforced Concrete Composite Beams. (U)

DESCRIPTIVE NOTE: Technical manuscript,  
MAY 73 37P Lott,James ;Naus,Dan ;  
Howdysnell,Paul ;  
REPT. NO. CERL-TM-W-48

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: Presented at the American Concrete Inst. Annual Meeting Held in Atlantic City, N. J., 2-9 May 73.  
DESCRIPTORS: (\*BEAMS(STRUCTURAL), REINFORCED CONCRETE), REINFORCING MATERIALS, POLYESTER PLASTICS, SANDWICH CONSTRUCTION, LOADS(FORCES), CREEP, STRUCTURAL PROPERTIES, DEFLECTION, COST EFFECTIVENESS (U)  
IDENTIFIERS: \*COMPOSITE BEAMS, CONCRETE POLYMER COMPOSITES (U)

IAC ACCESSION NUMBER: PL-019241

IAC DOCUMENT TYPE: PLASTIC -HARD COPY--

Composite beams consisting of reinforced concrete and a layer on top of polyester- concrete in the region of high compressive stress are tested and evaluated. The creep characteristics of polyester concrete were evaluated using 1000 hour creep tests, and the effect of sustained load on the ultimate compressive strength was also determined. Composite beams which were 6 by 6 by 64 in. (15.2 by 16.5 by 162.6 cm) were fabricated by casting precast reinforced concrete beams with a layer of fibrous polyester concrete of various gibbon thicknesses. The composite beams were subjected to third-point loads on a simply supported length of 57 inches (145 cm). Load-deflection behavior and ultimate strength were determined for various combinations of reinforcement and depth of fibrous polyester concrete cap. Experimental and analytical results indicate that the fibrous polyester concrete composite beams are performance and material cost effective relative to reinforced concrete beams with the same percentage of tensile reinforcement. (Author-PL)

IAC SUBJECT TERMS: P--(U)Compressive strength-Polyester concrete, Creep-Polyester concrete, Beam-AD- 762 114

UNCLASSIFIED

PAGE

270

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD- 762 113 13/3 13/13

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN ILL

Polymerized Lightweight Structural Elements. (U)

DESCRIPTIVE NOTE: Technical manuscript,  
MAY 73 11P Lott,James L. ;Birkimer,D.  
;  
REPT. NO. CERL-TM-W-46

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: Presented at the Conference on Radiation and Isotope Techniques in Civil Engineering, Brussels (Belgium) 28-30 Oct 70.  
DESCRIPTORS: (\*REINFORCED CONCRETE, PLASTICS), (\*STRUCTURAL MEMBERS, REINFORCED CONCRETE), REINFORCING MATERIALS, POLYMERS, IMPREGNATION, FILLING, COMPRESSIVE PROPERTIES, TENSILE PROPERTIES, MODULUS OF ELASTICITY, LOADS(FORCES), THERMAL INSULATION (U)

IAC ACCESSION NUMBER: PL-019648

IAC DOCUMENT TYPE: PLASTIC -HARD COPY--

Impregnation of concrete materials with polymers was extended to include the impregnation of lightweight foam concretes. All specimens that were polymerized were impregnated with a promoted 60 percent polyester-40 percent styrene resin, which had a viscosity of approximately 700 cps at room temperature. Filling approximately 90 percent of the extensive void system of the foam concrete with a polymer increased the compressive strength from 202 psi to 3250 psi, the splitting tensile strength from 30 psi to 1008 psi, and the modulus of elasticity from 100,000 psi to 425,000 psi. Beam structural elements were partially impregnated to produce a 'sandwich panel' element which can utilize the foam concrete core to act as an insulator and as a spacer to separate the polymer impregnated surface regions; and can utilize the polymer impregnated surface regions to resist loadings. The sandwich element produced thus utilizes materials efficiently to satisfy the multiple functional requirements of load and of environment. (Author, modified-PL)

IAC SUBJECT TERMS: P--(U)Impregnation, Polymer concrete, Concrete, Polyester, Styrene, Foam concrete, Sandwich panels, Compressive strength, AD- 762 113

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DOC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099052

AD- 761 077 13/3

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILL

Technical Information Pamphlet on Use of  
Fibrous Concrete (Applicability of Fibrous  
Concrete for Military Facilities).

(U)

DESCRIPTIVE NOTE: Preliminary rept.,  
MAY 73 16P Williamson, G. R. ; Gray, B.

H. ;

REPT. NO. CERL-PR-M-44  
PROJ: DA-A-4664717-D-895  
TASK: A-4664717-D-89523

UNCLASSIFIED REPORT

DESCRIPTORS: (\*REINFORCED CONCRETE, HANDBOOKS), STEEL,  
MANUFACTURING, WEAR RESISTANCE, TRAFFICABILITY, COSTS,  
AGING(MATERIALS), FIBERS (U)  
IDENTIFIERS: STEEL FIBERS (U)

The report discusses various guidelines for the use  
of fibrous (steel fibers) concrete by field  
personnel. Included are definitions of the nature  
of fibrous concrete, reasons for using it, properties  
and characteristics of the material, types and  
sources of steel fibers, and concrete mix design  
procedures. The report specifically discusses  
methods for handling and batching steel fibers,  
concrete quality control, and concrete placing,  
finishing, and curing. Explanations of promising  
applications, costs, and sources of assistance are  
provided. (Author) (U)

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DOC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD- 760 490 13/2 15/5

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILL

Evaluation of a Field-Type Incinerator for  
Human Waste (Theater of Operations Sewage  
Treatment Systems).

(U)

DESCRIPTIVE NOTE: Technical rept.,  
MAR 73 66P Matherly, J. ;  
REPT. NO. CERL-TR-E-10  
PROJ: DA-4-A-666717-D-895

UNCLASSIFIED REPORT

DESCRIPTORS: (\*TOILET FACILITIES, \*SANITARY  
ENGINEERING), (\*INCINERATORS, SANITARY ENGINEERING),  
ODORS, SMOKE, PARTICLES, BACTERIA, URINE,  
WASTES(SANITARY ENGINEERING), PERFORMANCE(ENGINEERING), (U)  
MILITARY REQUIREMENTS (U)  
IDENTIFIERS: SEWAGE TREATMENT, FECES (U)

The report presents results and an evaluation of  
efforts to modify the burn-out latrine to improve its  
operational characteristics while maintaining  
simplicity of fabrications. Modifications to the  
burn-out latrine, developed by Illinois Institute  
of Technology Research Institute, consist  
primarily of a method of metering fuel into a waste  
container, and the addition of a burner stack  
assembly designed to reduce smoke by improving air-  
fuel mixture, detention time, and other pertinent  
considerations. These modifications were  
fabricated, operated, and tested under field  
conditions. (Modified author abstract) (U)

AD- 761 077

UNCLASSIFIED

PAGE

271

AD- 760 490

UNCLASSIFIED

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099052

AD- 760 489 15/5 13/13

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILL

Life Expectancy of Facilities. (U)

DESCRIPTIVE NOTE: Preliminary report.  
APR 73 30P Kirby, Jeffrey G. ;  
REPT. NO. CERL-PR-A-14  
PROJ: CERL-OK-1  
TASK: OK-1-02

UNCLASSIFIED REPORT

DESCRIPTORS: (\*BUILDINGS, LIFE EXPECTANCY), (\*MILITARY  
FACILITIES, BUILDINGS), HOUSING, WELL BEING, MAINTENANCE,  
MAINTAINABILITY, REGRESSION ANALYSIS, COSTS, PLANNING,  
MATHEMATICAL MODELS, COMPUTER PROGRAMS (U)

The preliminary report presents a life expectancy  
of facilities model and explains how to employ the  
model. Maintenance information on various building  
materials will be collected from a sample of 286  
facilities at six different CONUS locations. The  
report also outlines the initial features of a data  
bank to store the maintenance cost information.  
(Author) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD- 760 185 15/5

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILL

DECOR Catalog for Dining Facilities. (U)

DESCRIPTIVE NOTE: Technical report.  
NOV 72 107P Hintz, Norman C. ; Cramer, R.  
W. ;  
REPT. NO. CERL-TR-D-1

UNCLASSIFIED REPORT

DESCRIPTORS: (\*MILITARY FACILITIES, \*FOOD DISPENSING),  
CATALOGS, DESIGN, COSTS  
IDENTIFIERS: FURNITURE (U)  
(U)

The catalog presents interior design concepts for  
dining facilities to assist installation and unit  
commanders in implementing the Army dining  
facilities improvement program. These designs are  
intended to improve the dining environment of the  
soldier by alleviating those things which he  
considers undesirable, such as drabness, noise, the  
appearance of crowdedness and lack of privacy.  
Although the designs are limited to the dining area  
and are tailored to existing building types, the  
concepts are adaptable to the design of new  
construction. It is intended that this publication  
serve as a design and planning guide from which a  
variety of coordinated decor packages can be  
developed. Included are dining facility layouts,  
an illustrated furniture and accessory index,  
correlation and cost data, color schemes, renderings  
of typical completed facilities, and comprehensive  
instructions to catalog users. Catalog revisions  
will be periodically issued as new materials and  
techniques are introduced. (Author) (U)



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AD- 759 486 15/5

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILL

Computer Simulation and Validation of the  
Travis Freight Terminal Facility.

(U)

DESCRIPTIVE NOTE: Technical rept.,

MAR 73 24P McNamee, Lawrence P. ;

REPT. NO. CERL-TR-A-13

PROJ: DA-4-A-664717-D-895

UNCLASSIFIED REPORT

DESCRIPTORS: (\*AIR FORCE EQUIPMENT, HANDLING), (\*CARGO,  
HANDLING), FORKLIFT VEHICLES, CONVEYORS, MATHEMATICAL  
MODELS, QUEUEING THEORY, GRAPHICS, MILITARY  
FACILITIES (U)

IDENTIFIERS: NETWORK FLOWS, \*FREIGHT TERMINALS, TRAVIS  
AIR FORCE BASE, COMPUTERIZED SIMULATION (U)

A GERTS IIQ computer simulation model of the  
Travis Air Force Base Air Freight  
facility is developed to describe the functional  
characteristics of cargo flow into, within, and out  
of the terminal. The simulation parameters  
incorporated in the model are derived from data  
obtained through on-site observations, communication  
with Travis personnel, and study of long-term  
operational records. Good agreement between  
simulation results and cargo terminal data is  
achieved. An example of how the simulation model  
can be used to analyze and possibly improve cargo  
operations is also included. It is shown that very  
little increase in throughput is obtained by moving  
general cargo with forklifts instead of with a  
conveyor system. Employing forklifts exclusively,  
however, requires more men to process the same amount  
of cargo. (Author) (U)

AD- 759 486

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PAGE

273

AD- 759 132

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD- 759 132 13/3

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILL

Materials and Procedures for the Repair of  
Spalls in Concrete.

(U)

DESCRIPTIVE NOTE: Technical rept.,

MAR 73 22P Kemphues, Robert F. ;

REPT. NO. CERL-TR-W-40

PROJ: DA-4-DW78012-AOK-1

UNCLASSIFIED REPORT

DESCRIPTORS: (\*CONCRETE, MAINTENANCE), DAMAGE, CEMENTS,  
EPOXY RESINS, GROUT (U)

IDENTIFIERS: EXPANDING CEMENTS (U)

IAC ACCESSION NUMBER: PL-019244

IAC DOCUMENT TYPE: PLASTIC -HARD COPY--

Old and new materials used for repairing damaged or  
deteriorated concrete are studied and evaluated.

Results of surveys are analyzed and an evaluation

matrix is developed to show performance ratings for

repair materials used on certain types of concrete

elements. Results indicate that large damaged areas

can be successfully and economically repaired using a

good quality, low slump, portland cement concrete

bonded to the old concrete with an epoxy resin grout.

Small spalls and specialized areas can be best

repaired with an epoxy resin mortar. Surface

preparation must be completed and manufacturer's

directions for mixing and curing followed.

Expansive cements and new modified latex materials

show promise, but field data is insufficient to draw

conclusions. (Author-PL) (U)

IAC SUBJECT TERMS: P--(U)Repair-Concrete, Spalling-  
Concrete, Grouting-Epoxy, Grouting-Polyester,  
Grouting-Urethane, ZZ Unlimited;

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD- 758 447 13/2

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILL

Pavement Distress Identification and  
Repair.

(U)

DESCRIPTIVE NOTE: Technical rept.,

MAR 73 140P Barenberg, Ernest J. ;  
Bartholomew, Charles L. ; Herrin, Moreland ;

REPT. NO. CERL-TR-P-6

CONTRACT: DACA88-71-C-0013

UNCLASSIFIED REPORT

DESCRIPTORS: (\*PAVEMENTS, MAINTENANCE), DEGRADATION,  
IDENTIFICATION, STATE-OF-THE-ART REVIEWS (U)

The report is a comprehensive state-of-the-art  
report on pavement distress, its identification and  
repair. It presents information to enable  
technically trained, but relatively inexperienced,  
personnel to identify pavement distress types in the  
field and plan repair or maintenance work  
accordingly. (Author Modified Abstract) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD- 758 152 13/2

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILL

An Economic Feasibility Study of  
Fayetteville, North Carolina, Treating Fort  
Bragg's Wastewater.

(U)

DESCRIPTIVE NOTE: Technical rept.,

MAR 73 28P Nelson, D. ; Matherly, J. E.

REPT. NO. CERL-TR-E-9

UNCLASSIFIED REPORT

DESCRIPTORS: (\*SANITARY ENGINEERING, \*MILITARY  
FACILITIES), NORTH CAROLINA, COSTS, STANDARDS,  
EFFECTIVENESS, CLASSIFICATION (U)

IDENTIFIERS: OPERATING COSTS, ACTIVATED SLUDGE  
PROCESS, PERFORMANCE EVALUATION, SECONDARY SEWAGE  
TREATMENT, SEWAGE TREATMENT PLANTS, COST COMPARISON,  
COST ESTIMATES (U)

The study evaluates the economic feasibility of  
Ft. Bragg, NC, entering into a cooperative  
wastewater treatment system with the Public Works  
Commission of the City of Fayetteville,  
N.C. Present and anticipated standards  
applicable to Ft. Bragg wastewater treatment  
plant effluent were defined. The condition and  
efficiency of both the plant and the collection  
system were assessed from existing information.  
Proposed schemes of Ft. Bragg's joining with  
Fayetteville for purposes of wastewater treatment  
were identified and defined. Cost estimates for  
the feasible alternatives were generated for  
comparison. (U)

AD- 758 447

UNCLASSIFIED

PAGE

274

AD- 758 152

UNCLASSIFIED

099062

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD- 758 151 5/9 5/10

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILL

Cost Effectiveness of Three Different  
Interior Open-Type Offices. (U)

DESCRIPTIVE NOTE: Technical rept.,  
MAR 73 26P Dinnat.R. M. ;Gibbs,M. ,

Jr;  
REPT. NO. CERL-TR-D-2

UNCLASSIFIED REPORT

DESCRIPTORS: (\*OFFICE BUILDINGS, \*EMPLOYEE RELATIONS),  
(\*ENVIRONMENT, ATTITUDES(PSYCHOLOGY)), COST  
EFFECTIVENESS, REVIEWS, PERFORMANCE(ENGINEERING),  
QUESTIONNAIRES, COSTS, STATISTICAL ANALYSIS (U)  
IDENTIFIERS: RESOURCES, EVALUATION (U)

The report presents an evaluation of three  
different open-type interior office environments at  
the U. S. Army Construction Engineering  
Research Laboratory, Champaign, Ill. The  
Action office, the GSA Partition office, and  
the Open Plan office, all containing the same  
kinds of research activities, were evaluated with  
respect to cost-effectiveness. Effectiveness was  
assessed by comparing measures of performance and  
physical resources among the three offices.  
occupants' attitudes about their offices. Cost-  
effectiveness was assessed by comparing the offices'  
effectiveness ranks with their cost per occupant.  
(Author Modified Abstract) (U)

AD- 758 151

UNCLASSIFIED

PAGE

275

AD- 757 630

UNCLASSIFIED

099062

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD- 757 630 13/3

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILL

Fracture Mechanics Apolicability to Portland  
Cement Concretes. (U)

DESCRIPTIVE NOTE: Technical manuscript,  
MAR 73 26P Naus,D. J. ;  
REPT. NO. CERL-TM-M-42

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: Presented at the Army Science  
Conference held at U.S. Military Academy, West  
Point, N. Y., 21 Jun 1972.  
DESCRIPTORS: (\*CONCRETE, FRACTURE(MECHANICS)), CEMENTS,  
CERAMIC MATERIALS, DEFECTS(MATERIALS), CRACK  
PROPAGATION, FAILURE(MECHANICS), DEFORMATION, MODEL  
TESTS, STRAIN(MECHANICS), TEST METHODS, EXPERIMENTAL  
DATA (U)  
IDENTIFIERS: PORTLAND CEMENTS (U)

In the investigation, the applicability of linear-  
elastic fracture mechanics to portland cement pastes,  
mortars, and concretes was determined by the  
fabrication, testing, and analysis of plate specimens  
containing a precast flaw. A model was developed  
which provides a qualitative measure of the size of  
the microcracking zone which occurs in concrete.  
Experimental results are correlated with the model.  
(Author Modified Abstract) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD- 757 629 1/5 15/5

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILL

A Stochastic Network to Model Air Cargo  
Terminals. (U)

DESCRIPTIVE NOTE: Technical manuscript,  
FEB 73 20P Ponte, Howard A. ;Happ, W.  
W. ;Lee, C. T. ;McNamee, L. P. ;  
REPT. NO. CERL-TM-A-7

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: Presented at the Army Science  
Conference, West Point, N. Y., 20-23 Jun 72.  
CONFERENCE: (\*TERMINAL FLIGHT FACILITIES, CONTROL  
SYSTEMS), (\*AIR TRANSPORTATION, \*CARGO), QUEUEING  
THEORY, DECISION MAKING, TRANSPORT AIRCRAFT, HANDLING,  
LOGISTICS, WAREHOUSES, MILITARY FACILITIES (U)  
IDENTIFIERS: COMPUTER AIDED ANALYSIS, COMPUTERIZED  
SIMULATION (U)

Bottlenecks of the material handling operation of  
an air cargo terminal are investigated by the  
stochastic network method of GERT IIIQ. The  
relationship of the GERTS IIIQ network model to  
construction specification is discussed.  
Operations bottlenecks are identified and connected  
through modification of facility constraints.  
(Author Modified Abstract) (U)

AD- 757 629

UNCLASSIFIED

PAGE

276

AD- 757 628

UNCLASSIFIED

099062

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD- 757 628 1/5 15/5

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILL

Activity Networks to Model Transportation  
Systems Subject to Facility Constraints. (U)

DESCRIPTIVE NOTE: Technical manuscript,  
FEB 73 14P Ponte, Howard A. ;Happ, W.  
W. ;  
REPT. NO. CERL-TM-A-6  
PROJ: DA-4-A-664717-D-895  
TASK: 4-A-664717-D-89504

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: Presented at the Annual Allerton  
Conference on Circuit and System Theory (9th),  
Monticello, Ill., 6-8 Oct 71.  
DESCRIPTORS: (\*TERMINAL FLIGHT FACILITIES, CONTROL  
SYSTEMS), (\*AIR TRANSPORTATION, \*CARGO), QUEUEING  
THEORY, DECISION MAKING, TRANSPORT AIRCRAFT, HANDLING,  
LOGISTICS, WAREHOUSES, MILITARY FACILITIES (U)  
IDENTIFIERS: COMPUTER AIDED ANALYSIS, COMPUTERIZED  
SIMULATION (U)

Cargo flow through an air cargo terminal is modeled  
as an activity network by utilizing: deterministic  
and probabilistic decision-making elements as nodes,  
activities or branches which relate the nodes and  
whose characteristics determine the magnitude and  
delay of commodity flow, and a set of statistical  
monitors to count events and to perform statistical  
evaluations at strategic points of the network.  
(Author) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD- 757 627 5/2 5/5

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILL

Initial Report on Systemizing Information to  
Identify and Relate Behavioral and Physical  
Design Parameters.

(U)

DESCRIPTIVE NOTE: Preliminary rept.,

MAR 73 8P Dressel, David L. ; Brauer,

Roger L. ;

REPT. NO. CERL-PR-D-4

PROJ: DA-4-A-062103-A-891

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: Report on Identification and  
classification of human needs in the military facility.  
DESCRIPTORS: (\*INFORMATION RETRIEVAL, HUMAN FACTORS  
ENGINEERING). (\*HUMAN FACTORS ENGINEERING, MILITARY  
FACILITIES), BUILDINGS, DESIGN, BEHAVIOR, COMPUTERS  
IDENTIFIERS: \*INFORMATION SYSTEMS (U)  
(U)

The preliminary report summarizes progress to date  
on development of an information system to service  
the identification and classification of human needs  
in the military facility. The system will be used  
to develop information for design decisions. At  
present, behavioral and design theories have been  
reviewed, and have played an important part in  
formulating the pilot information system. The  
system is responsive to the requirements of both the  
researcher and the designer, with data categorized  
and translated through the relationship sentence.  
Amenable to computer input, storage and data  
retrieval, the relationship sentence is a statement  
of relation between constraints, user activities, and  
physical characteristics. The structure of the  
relationship sentence is thought to be complete  
enough for easy gathering of data from existing  
studies, yet sufficiently flexible to allow  
categorization of behavioral data in varying degrees  
of explicitness. The output from the system is  
intended to be compatible with developing computer-  
aided design programs if not an integral part of  
such program. Discussed in this report is the  
structure and function of the information system, its  
relation to information science and computer-aided  
architecture, and work required for its further (U)

AD- 757 627

UNCLASSIFIED

PAGE

277

AD- 757 208

UNCLASSIFIED

099062

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD- 757 208 1/5 13/12

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILL

Inspection of Pavement Grooving.

(U)

DESCRIPTIVE NOTE: Technical rept. Dec 71-Jan 72.

FEB 73 50P

Gunkel, Robert C. ;

PROJ: AF-6111A

TASK: 5-3

MONITOR: AFWL TR-72-149

UNCLASSIFIED REPORT

DESCRIPTORS: (\*SKIDDING, CONTROL), (\*PAVEMENTS,  
SKIDDING), (\*LANDING FIELDS, PAVEMENTS), SURFACE  
ROUGHNESS, AIRPORTS, MAINTENANCE, DETERIORATION, VISUAL  
INSPECTION (U)  
IDENTIFIERS: \*PAVEMENT GROOVING (U)

A reinspection of grooved pavements at four  
commercial and one military airfield was conducted by  
the Construction Engineering Research  
Laboratory (CERL) in December 1971 and  
January 1972. The inspection included grooving  
in both portland cement concrete (PCC) asphaltic  
concrete (AC) pavements which had been grooved  
approximately 4 1/2 years prior to this inspection.  
Grooves in all PCC pavements were considered to  
be in excellent condition with no evidence of  
deterioration on the pavement surface. At one  
airfield, Kansas City Municipal, numerous  
surface voids were noted which were due mainly to  
weathering out of poor quality materials. Many of  
these surface defects apparently were present at the  
time of grooving; however, it was apparent that some  
of the surface defects had developed recently.  
(Author Modified Abstract) (U)

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD- 757 169 15/5 15/3.1

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN ILL

Optimization of Resource Allocation in Maintenance Management Logistics Systems. (U)

DESCRIPTIVE NOTE: Technical manuscript,  
FEB 73 23P Trent, R. L.; Martin, E. ;  
Wine, J. C. ;  
REPT. NO. CERL-TM-A-9

## UNCLASSIFIED REPORT

DESCRIPTORS: (\*LOGISTICS, OPTIMIZATION), (\*ANTIMISSILE DEFENSE SYSTEMS, LOGISTICS), MANAGEMENT PLANNING AND CONTROL, MANPOWER, SCHEDULING, SYSTEMS ENGINEERING, MAINTENANCE (U)

IDENTIFIERS: \*LOGISTICS MANAGEMENT, \*MAINTENANCE MANAGEMENT, RESOURCE ALLOCATION, SAFEGUARD ANTIBALLISTIC MISSILE SYSTEMS (U)

System availability and cost constraints imposed on tactical weapon systems necessitate corresponding care in the design and implementation of their associated maintenance management systems. It is necessary to forecast maintenance manpower staffing levels required to ensure consistent system performance within operational goals, and to perform comparative analyses of total program costs, including supportive resources. Examples of the constraints and types of rules imposed on a resource allocation system designed for application to the SAFEGUARD Ballistic Missile Defense System is described. Based upon these rules, a computerized management system is designed which meets maintenance planning and operational requirements. (Author Modified Abstract) (U)

AD- 757 169

UNCLASSIFIED

PAGE

278

AD- 756 384

UNCLASSIFIED

099062

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD- 756 384 13/3 13/2 1/5

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN ILL

Fibrous Concrete - Construction Material for the Seventies (May 1-3, 1972). (U)

DESCRIPTIVE NOTE: Conference proceedings,  
DEC 72 237P Gray, G. H.; Williamson, G. R. ;  
Batson, G. B. ;  
REPT. NO. CERL-TR-M-28

## UNCLASSIFIED REPORT

DESCRIPTORS: (\*REINFORCED CONCRETE, SYMPOSIA), (\*PAVEMENTS, REINFORCED CONCRETE), STATE-OF-THE-ART REVIEWS, MIXTURES, STEEL, GLASS TEXTILES, FLEXURAL STRENGTH, PERFORMANCE(ENGINEERING), DESIGN, ROADS, CONSTRUCTION, RUNWAYS (U)

IDENTIFIERS: CONCRETE CONSTRUCTION (U)

IAC ACCESSION NUMBER: PL-020758  
IAC DOCUMENT TYPE: PLASTIC -HARD COPY--  
This Conference Proceedings contains many of the papers presented at the May 1972 Fibrous Concrete Conference sponsored by the U.S. Army Corps of Engineers. The conference emphasized fibrous concrete as a construction material for the 1970's. Two papers are of interest to PLASTEC. (Author, modified-PL) (U)

IAC SUBJECT TERMS: P--(U)Fibers-Concrete, ZZ  
Conference 72, ZZ Unlimited.;

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD- 755 526 1/5 13/2

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILL

An Analysis of Pickett's Solution to  
Westergaard's Equation for Rigid Pavements.

(U)

DESCRIPTIVE NOTE: Technical rept.,

JAN 73 12P Eberhardt, A. C. ;

REPT. NO. CERL-TR-S-14

PROJ: DA-4-A-664717-D-895

TASK: 4-A-664717-D-89504

UNCLASSIFIED REPORT

DESCRIPTORS: (\*RUNWAYS, PAVEMENTS), (\*PAVEMENTS,  
LOADS(FORCES)), CONCRETE, STRENGTH, FLEXURAL STRENGTH,  
THICKNESS, MATHEMATICAL ANALYSIS (U)  
IDENTIFIERS: COMPUTER AIDED ANALYSIS (U)

Influence coefficients used by the Corps of  
Engineers for the development of design curves for  
rigid airfield pavements have been re-computed and  
extended to permit an expanded and more accurate  
analysis of large military aircraft such as the C-  
5A. Calculations were performed using a digital  
computer in conjunction with a more refined numerical  
integration technique. Results are compared with  
the original influence coefficients, and the impact  
of the more accurate extended table of influence  
coefficients is evaluated by employing the new and  
old influence coefficients to calculate edge stress  
resulting from several representative aircraft gear  
loads. It is also demonstrated that further  
accuracy can be obtained by using a non-linear  
interpolation scheme derived from a bivariate  
quadratic regression analysis in place of a linear  
interpolation procedure to extract intermediate  
values from the table of influence coefficients.  
Finally, other areas of research which may possibly  
lead to improvements in the Corps design procedure  
for rigid airfield pavements are suggested.  
(Author)

(U)

AD- 755 526

UNCLASSIFIED

PAGE

279

AD- 755 525

UNCLASSIFIED

099062

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD- 755 525 12/1

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILL

Laplace Transform Inversion by Fourier  
Series Expansion.

(U)

DESCRIPTIVE NOTE: Technical manuscript,

FEB 73 24P Marvin, Eugene L. ;

REPT. NO. CERL-TM-P-4

UNCLASSIFIED REPORT

DESCRIPTORS: (\*INTEGRAL TRANSFORMS, FOURIER ANALYSIS),  
SERIES(MATHEMATICS), BOUNDARY VALUE PROBLEMS,  
APPROXIMATION(MATHEMATICS), NUMERICAL INTEGRATION,  
GRAPHICS, ALGORITHMS, COMPUTER PROGRAMMING, BOUNDARY  
VALUE PROBLEMS (U)  
IDENTIFIERS: \*LAPLACE TRANSFORMATION, NUMERICAL  
INTEGRATION, MATHEMATICAL ANALYSIS (U)

A computerized algorithm that may be used for  
performing the Laplace and double Laplace-  
Hankel inverse integral transformations is  
presented. The theoretical basis of the algorithm  
is given, and the results of numerical tests  
performed on the transformed images of known solution  
functions are shown. The general application of  
the algorithm to real problems is discussed, and  
experience gained in applying it is presented. The  
application of the algorithm in the solution of  
initial-boundary value problems is treated  
specifically. (Author)

(U)



UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD- 755 524 13/5 13/8

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILL

The Introduction of Discontinuities in High  
Strength Steel Weldments.

(U)

DESCRIPTIVE NOTE: Preliminary rept.,  
DEC 72 12P Carlson, K. W. ; Lawrence, F.  
V. , Jr. ; Radzinski, J. B. ;  
REPT. NO. CERL-PR-M-27  
PROJ: DA-4-DW-78012-AOK-1

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: Addenda to rept. no. CERL-TR-M-  
24 dated Sep 72, AD-749 459.  
DESCRIPTORS: (\*WELDS, \*RADIOGRAPHY), NONDESTRUCTIVE  
TESTING, DEFECTS(MATERIALS), STEREOPHOTOGRAPHY, STEEL,  
POROSITY, SLAGS, HYDROGEN EMBRITTLEMENT, IMPURITIES (U)  
IDENTIFIERS: WELD DEFECTS, WELDMENTS.  
\*STEREORADIOGRAPHY (U)

IAC ACCESSION NUMBER: MCIC-086250 NT-007390  
IAC DOCUMENT TYPE: MCIC -HARD COPY-- NTIAC -  
MICROFICHE--

The objective of this study was to develop methods  
for consistently creating porosity, slag inclusions,  
lack of fusion, and hydrogen cross-cracking  
discontinuities in welds to evaluate their effects on  
the properties of welds. To accomplish this  
objective, weld deposition procedures were altered  
systematically to develop welding techniques capable  
of producing a specific discontinuity type and size.  
The techniques used included both electrical and  
mechanical perturbations of the welding parameters.  
It proved possible to implant weld discontinuities  
with good reproducibility. It was found, however,  
that mechanical perturbations were more reliable for  
accurate reproduction of discontinuities.  
(Author) (U)

IAC SUBJECT TERMS: N--(U)\*WELDS, \*FABRICATED DEFECTS,  
STEEL, POROSITY, SLAGS, INCLUSIONS, WELD INTEGRITY,  
RADIOGRAPHY;

AD- 755 524

UNCLASSIFIED

PAGE

280

AD- 755 523

UNCLASSIFIED

099062

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD- 755 523 5/1

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILL

An Introduction to Technological  
Forecasting.

(U)

DESCRIPTIVE NOTE: Technical rept.,  
FEB 73 9P Pananos, William J. ;  
REPT. NO. CERL-TR-A-12  
PROJ: DA-4-A-062112-A-891

UNCLASSIFIED REPORT

DESCRIPTORS: (\*SCIENTIFIC RESEARCH, \*MANAGEMENT PLANNING  
AND CONTROL), PREDICTIONS, ANALYSIS OF VARIANCE,  
CORRELATION TECHNIQUES, TIME SERIES ANALYSIS,  
INSTRUCTION MANUALS (U)  
IDENTIFIERS: \*FORECASTING, \*TECHNOLOGY (U)

The report describes to persons engaged in planning  
(in the Corps of Engineers and elsewhere),  
what technological forecasting is and how it is used.  
Technological forecasting is an activity which  
accompanies long-range planning. It is  
distinguished from planning by its end result, which  
is descriptive -- whereas a plan is prescriptive. A  
forecast may either precede the planning process, in  
which case it is defined as exploratory; or follow  
it, in which case it is described as evaluative.  
An exploratory forecast and an evaluative forecast  
prepared for the same plan will differ in both scope  
and detail. (Author) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD- 753 927 1/5

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILL

The User Requirements for an Airfield  
Pavement System.

(U)

DESCRIPTIVE NOTE: Technical rept.,

JAN 73 25P Pfeister, J. L. ;

REPT. NO. CERL-TR-P-7

PROJ: DA-4-A-062112-A-891

UNCLASSIFIED REPORT

DESCRIPTORS: (\*PAVEMENTS, ACCEPTABILITY), (\*RUNWAYS,  
PAVEMENTS), DESIGN, SPECIFICATIONS, MILITARY  
REQUIREMENTS, MATHEMATICAL MODELS, MAINTENANCE  
PERSONNEL, QUALITY CONTROL, REVIEWS, AVIATION  
PERSONNEL

(U)

The evolution of a systems approach to the design  
and evaluation of airfield pavements necessitated the  
establishment of a set (or sets) of quantified  
user requirements, which could be used to define the  
critical parameters of the pavement-aircraft-airfield  
pavements systems, but also generated a hierarchy of  
users, and delineated the respective needs of the  
primary users. (Author)

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD- 753 925 1/5 9/2 15/5

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILL

Development of a Standard Data Base and  
Computer Simulation Model for an Air Cargo  
Terminal.

(U)

DESCRIPTIVE NOTE: Technical rept.,

JAN 73 50P McNamee, Lawrence P. ; Lee,

Chao ;

REPT. NO. CERL-TR-A-8

PROJ: DA-4-A-664717-D-895

TASK: 4-A-664717-D-89504

MONITOR: CPG 73-0029

UNCLASSIFIED REPORT

(U)

DESCRIPTORS: (\*TERMINAL FLIGHT FACILITIES, \*CARGO),  
(\*COMPUTER PROGRAMMING, HANDLING), QUEUEING THEORY,  
STOCHASTIC PROCESSES, MILITARY TRANSPORTATION,  
MATHEMATICAL MODELS, DATA PROCESSING  
IDENTIFIERS: NETWORK FLOWS, COMPUTERIZED  
SIMULATION

(U)

The traditional methods of renovating air cargo  
terminals are to replace material handling equipment  
with more efficient machinery, and to make additions  
to the existing terminal complex. However, with the  
introduction and forecasted increase in the Jumbo  
Cargo Jet concept, these methods become  
unfeasible. Recent studies in the aerospace  
industry predict that 10 to 20 times the cargo  
tonnage of today will be in circulation by 1985,  
reflecting the urgent need for new designs based on a  
flexible, long-range, heavy volume systems approach.  
In order that design is addressed with the proper  
criteria considered, an exhaustive study of cargo  
handling facilities is needed. The report provides  
a GERTS 3Q simulation model for a Dorteck air  
cargo facility and presents a recommendation for the  
development of a compatible Army-Air Force  
Air Cargo Data Base System.

(U)

AD- 753 927

UNCLASSIFIED

PAGE

281

AD- 753 925

UNCLASSIFIED

099062

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD- 752 454 13/3 11/4

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN ILL

Creep Characteristics of Polyester Concretes. (U)

DESCRIPTIVE NOTE: Technical rept.,  
NOV 72 20P Howdysheil, P. A. ;  
REPT. NO. CERL-TR-M-23  
PROJ: DA-4-DM-8012-AOK-1

UNCLASSIFIED REPORT

DESCRIPTORS: (\*CONCRETE, \*POLYESTER PLASTICS).  
(\*COMPOSITE MATERIALS, POLYESTER PLASTICS). REINFORCED  
PLASTICS, QUARTZ, CEMENTS, CREEP, CONSTRUCTION  
MATERIALS (U)  
IDENTIFIERS: PARTICULATE COMPOSITES, \*FILLED THERMOSET  
MOLDING MATERIALS, FILLED COMPOSITES (U)

IAC ACCESSION NUMBER: PL-018177  
IAC DOCUMENT TYPE: PLASTIC -HARD COPY--

The purpose of this project was to determine the nature, magnitude, and factors influencing the creep of particle-filled polyesters, and to what extent creep affects the usefulness of the material in concrete-type applications. Tests were conducted on an aggregate-and a cement particle-filled polyester to determine compressive creep characteristics. The evaluation consisted of using laboratory test techniques that directly relate to the evaluation of creep in portland cement concrete. Results indicated that particle-filled polyesters are visco-elastic in nature and creep when subjected to sustained loads. While the creep strains of the filled polyesters were similar in nature and magnitude to what could be expected from equivalently-loaded portland cement concrete, the creep characteristics of the polyesters appeared to be very sensitive to small temperature variations. Also, the polyesters exhibited creep failure tendencies at lower stress-to-strength ratios than would be expected from portland cement concretes. (Author-PL) (U)

IAC SUBJECT TERMS: P--(U)Building-Concrete/  
polyester, Creep-Concrete/polyester, Viscoelasticity-  
Concrete/polyester, Failure analysis-Concrete/  
polyester, Fracture-Concrete/polyester, Stress  
AD- 752 454

UNCLASSIFIED

PAGE

282

AD- 751 177

UNCLASSIFIED

099062

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD- 751 177 8/7 13/13

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN ILL

Tentative Field Engineering Index for Rocks. (U)

DESCRIPTIVE NOTE: Technical manuscript.,  
NOV 72 29P Aufmuth, Raymond E. ;  
REPT. NO. CERL-TM-M-29  
PROJ: DA-4-DM-78012-AOK-1

UNCLASSIFIED REPORT

DESCRIPTORS: (\*ROCK, \*INDEXES), UNDERGROUND STRUCTURES,  
STRUCTURES, FAILURE(MECHANICS), CLASSIFICATION,  
ENGINEERING GEOLOGY (U)

Knowledge of rock properties is essential to the design of structures utilizing the rock mass as part of the structural system and to the construction process in terms of excavation methods and prevention of rock failures. The determination of rock properties relevant to design and the quick dissemination of this knowledge, in a meaningful form to the user, are important in terms of design and construction management. A Field Engineering Index for Rock has been developed in order to provide a language by means of which the engineering characteristics of a particular rock may be presented in a brief, concise and relevant manner. The Engineering Index combines the lithology and the mechanical properties of the intact rock, to make the information more meaningful and useful to engineers and contractors. Data for the Engineering Index is obtained and accurately determined from field tests performed at the borehole site. Examples of the proposed Engineering Index System are illustrated by use of previously published data and from field information. (Author) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062  
AD- 751 172 14/2 20/11

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILL

Feasibility of Applying Fringe Multiplication  
Techniques to Stress Analysis in Three  
Dimensions.

(U)

DESCRIPTIVE NOTE: Final technical rept.,  
JUL 72 22P Hubbard, John H. ;  
REPT. NO. CERL-TR-S-9  
PROJ: CERL-XY-1  
TASK: XY-1-06

UNCLASSIFIED REPORT

DESCRIPTORS: (\*STRESSES, PHOTOELASTICITY),  
NONDESTRUCTIVE TESTING, EXPERIMENTAL DESIGN, TEST  
EQUIPMENT, FEASIBILITY STUDIES  
IDENTIFIERS: STRESSES

(U)  
(U)

The report presents an evaluation of the fringe  
multiplication technique as an adjunct to the frozen  
stress approach of three dimensional experimental  
stress analysis. A model of the intersection of two  
horseshoe shaped tunnels was constructed and loaded  
at an elevated temperature. Slices were cut from  
the model for study. Isochromatic fringe  
multiplication up to and including 7X was obtained  
on selected slices. The fringe sharpening  
technique was demonstrated. (Author)

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AD- 751 172

UNCLASSIFIED

PAGE

283

AD- 750 386

UNCLASSIFIED

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UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062  
AD- 750 386 15/5 15/3.1 5/1

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILL

Optimization of Resource Allocation in  
Maintenance Management Logistics Systems,

(U)

72 19P Trent, Robert L. ; Martin,  
Elmer C. ; Wine, Jack C. , Sr;

UNCLASSIFIED REPORT

DESCRIPTORS: (\*LOGISTICS, \*MANAGEMENT PLANNING AND  
CONTROL), (\*ANTIMISSILE DEFENSE SYSTEMS, LOGISTICS),  
MANPOWER, SCHEDULING, MAINTENANCE, SPARE PARTS,  
INVENTORY CONTROL, MANAGEMENT PLANNING AND CONTROL, DATA  
PROCESSING  
IDENTIFIERS: FORECASTING

(U)  
(U)

The report describes the multiphasic development of  
an integrated logistic support system specifically  
designed to forecast maintenance manpower staffing  
levels, and supportive resource requirements, and to  
provide operational scheduling for the maintenance of  
the Tactical Support Equipment (TSE)  
associated with the various sites of the SAFEGUARD  
BMD System. (Author)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062  
AD- 750 365 15/5 12/2

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILL

A Stochastic Network to Model Air Cargo  
Terminals, (U)

72 16P Ponte,H. A. :Happ,W. W.  
:Lee,C. T. :McNamee,L. P. ;

## UNCLASSIFIED REPORT

DESCRIPTORS: (\*CARGO, \*HANDLING), (\*AIRPORTS, CARGO),  
STOCHASTIC PROCESSES, QUEUEING THEORY, INVENTORY (U)  
CONTROL, WAREHOUSES, MATHEMATICAL MODELS (U)  
IDENTIFIERS: NETWORK FLOWS, COMPUTERIZED  
SIMULATION (U)

In recent years design approaches to aircargo terminal operations had to be reexamined in order to cope with the vast increases in the cargo handling requirements due to the introduction of jumbo jets. Although a new cargo handling system proposed by Dorteck would seem to handle the large cargo commitments, virtually no evaluation of its functional capabilities had been verified by actual design or by in depth computer simulation studies. Relevant computer studies include: the simulation of aircargo input/output cargo flow patterns, and the development of a GERTS IIIQ simulation model of a Dorteck type aircargo facility. In the paper an in depth parameter study of the Dorteck approach to aircargo handling is presented by means of a GERTS IIIQ simulation model. (Author) (U)

AD- 750 365

UNCLASSIFIED

PAGE

284

AD- 750 356

UNCLASSIFIED

099062

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062  
AD- 750 356 13/3

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILL

Fracture Mechanics Applicability to Portland  
Cement Concretes, (U)

72 16P Naus,Dan Jay ;

## UNCLASSIFIED REPORT

DESCRIPTORS: (\*CONCRETE, FRACTURE(MECHANICS)), CRACK  
PROPAGATION, LOADS(FORCES), DEFORMATION, ELASTIC  
PROPERTIES, DEFECTS(MATERIALS), STRESSES,  
STRAIN(MECHANICS), THICKNESS (U)  
IDENTIFIERS: \*PORTLAND CEMENTS (U)

The applicability of linear-elastic fracture mechanics to cement paste, mortar, and concrete was determined by the fabrication, testing, and analysis of plate specimens, each containing a precast flaw and loading hole extending through the thickness of the specimen and located at the center of the specimen. A rigid plastic cracked strip model was developed to provide an estimate of the microcracking zone that exists in the region of a crack tip in cement paste, mortar or concrete. The experimental results were correlated with the model. (Author) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD- 749 459

13/5

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILL

The Examination of Discontinuities in Welds  
by Stereoradiography. (U)

DESCRIPTIVE NOTE: Technical rept.,

SEP 72 16P Carlson, K. W.; Lawrence, F.

V. ;

REPT. NO. CERL-TR-W-24

PROJ: RTD/E-4-A-062112-A-891, DA-4-DW-78012-AOK-1

TASK: 4-A-062112-A-89106, 4-DW-78012-AOK-102

UNCLASSIFIED REPORT

DESCRIPTORS: (\*WELDS, RADIOGRAPHY), NONDESTRUCTIVE  
TESTING, DEFECTS(MATERIALS), STEREOPHOTOGRAPHY, COMPUTER  
PROGRAMS (U)

IDENTIFIERS: \*STEREORADIOGRAPHY (U)

IAC ACCESSION NUMBER: MCIC-085229

IAC DOCUMENT TYPE: MCIC -HARD COPY--

Since welds are rarely defect-free, it is desirable to quantify the effects of defects on the mechanical properties of welds and to develop a field inspection procedure more reliable, more complete, faster, and less costly than that currently in use. This investigation of the feasibility and practicability of stereoradiography was to satisfy the latter objective. Stereoradiography, unlike normal incidence radiography or ultrasonic inspection, permits direct three-dimensional observation of internal flaws. Stereoradiography entails obtaining an x-ray exposure at two known positions of the object with respect to the x-ray tube and viewing the stereo-pair through a stereo-viewer (stereoscope). By accurately measuring the parallax differences resulting from the specimen (or x-ray tube) shift, one may calculate the weld flaw's depth below the plate surface using photogrammetric principles. To evaluate this technique, ten pores in a defective weldment were measured at three different times. The results were compared to determine how well an observer could reproduce his measurements. The weld was sectioned, and the actual pore depths were measured directly. These results were compared to the (U)

AD- 749 459

UNCLASSIFIED

PAGE

285

AD- 749 458

UNCLASSIFIED

099062

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD- 749 458

13/13

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILL

Inspection of Pile Driving Operations. (U)

DESCRIPTIVE NOTE: Technical rept.,

JUL 72 62P Davissan, M. T. ;

REPT. NO. CERL-TR-M-22

PROJ: DA-4-DW-78012-AOK-1

TASK: 4-DW-78012-AOK-102

UNCLASSIFIED REPORT

DESCRIPTORS: (\*FOUNDATIONS(STRUCTURES), QUALITY  
CONTROL), (\*CONSTRUCTION, INDUSTRIAL EQUIPMENT),  
PERSONNEL MANAGEMENT, SALARIES, CONSTRUCTION MATERIAL  
IDENTIFIERS: PILE DRIVING, PILE DRIVERS (U)

The inspection of pile driving operations involves the accumulation and interpretation of technical data and the simultaneous recording of pay item data. The manual is designed to explain the range of tasks inspectors must perform and to put the tasks in the broader perspective of the entire pile driving operation. The manual begins by explaining pre-construction organization, then the pile driving operation, and finally the data that the inspector must record. Two appendices include additional technical information on pile drivers, both the hammer and vibratory types. (Author) (U)

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD- 748 408 11/6

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILLDirectional Transformations in Steel - Alloy  
Development. (U)

DESCRIPTIVE NOTE: Preliminary rept.,  
JUL 72 17P Quattrone, R. ; Muntner, M.  
S. ; Wayman, C. M. ;  
REPT. NO. CERL-PR-M-21  
PROJ: DA-4-A-061101-A-91-D, DA-17062105-A-328

## UNCLASSIFIED REPORT

DESCRIPTORS: (\*STEEL, PHASE STUDIES), AUSTENITE,  
MARTENSITE, TRANSFORMATIONS, MICROSTRUCTURE, NICKEL  
ALLOYS, MANGANESE ALLOYS (U)  
IDENTIFIERS: HIGH STRENGTH ALLOYS, STEEL (U)

IAC ACCESSION NUMBER: MCIC-085302  
IAC DOCUMENT TYPE: MCIC -HARD COPY--

The study is part of an overall project to develop techniques for producing directional martensite in steel and to assess the properties of such a material. The objective of the work reported herein was to select suitable ferrous alloys. Analyses of the texturing and transformation behavior of austenite were conducted to determine the composition ranges which might be suitable for transformation to directional martensite. On the basis of these analyses, it was concluded that satisfactory alloys would be characterized by a stable austenite with a low M sub s and M sub d and a lath transformation product. (Author) (U)

IAC SUBJECT TERMS: --(U) Iron Alloys, 24Ni  
Steel, 25Ni Steel, Manganese Addition,  
Microstructure, Martensite, Transformation,  
Electrical Resistivity.;

AD- 748 408

UNCLASSIFIED

PAGE

286

AD- 745 902

UNCLASSIFIED

099062

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD- 745 902 8/13 13/2

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILL

Stabilization of Contaminated Clays. (U)

DESCRIPTIVE NOTE: Final technical rept.,  
JUN 72 16P Aufmuth, Raymond E. ;  
REPT. NO. CERL-TR-M-19  
PROJ: CERL-OK-1  
TASK: OK-1-02

## UNCLASSIFIED REPORT

DESCRIPTORS: (\*SOIL MECHANICS, COMPRESSIVE PROPERTIES),  
(\*CLAY MINERALS, STABILIZATION), KAOLINITE,  
MONTMORILLONITE, CHEMICAL ANALYSIS, PLASTIC PROPERTIES,  
FOUNDATIONS (STRUCTURES) (U)  
IDENTIFIERS: SOIL CLASSIFICATION, \*SOIL STABILIZATION,  
ILLITE (U)

Three basic clay minerals -- kaolinite, illite and montmorillonite -- were investigated to determine the feasibility of stabilizing or otherwise improving selected engineering properties using lime or cement. Treatment with lime developed greater unconfined compressive strengths, lower densities with increased moisture, and greater resistance to moisture and ice penetration, than with the natural clay minerals. Treating kaolinite and illite with cement produced improved strengths and resistance to wet-dry and freeze-thaw cycling. However cement was not effective in improving these properties in montmorillonite because of the clay's fineness, crystallinity and large surface area. (Author) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD- 745 901 8/13 13/2

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILLStabilization Studies of Southeast Asian  
Soils: Vietnam. (U)

DESCRIPTIVE NOTE: Final technical rept.,  
JUN 72 18P Aufmuth, Raymond E. ;  
REPT. NO. CERL-TR-M-17  
PROJ: CERL-OK-1  
TASK: OK-1-02

## UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: See also AD-745 902.  
DESCRIPTORS: (\*SOIL MECHANICS, VIETNAM), CHEMICAL  
ANALYSIS, GRANITE, BASALT, STABILIZATION, PLASTIC  
PROPERTIES, COMPRESSIVE PROPERTIES,  
FOUNDATIONS (STRUCTURES)  
IDENTIFIERS: \*LATERITE SOILS, ALLUVIUM, \*SOIL  
STABILIZATION, SOILS

The report summarizes the results of an investigation to determine physical, chemical and selected engineering properties of six Southeast Asian soils encountered in pavement facility construction. Lime and cement manufactured in the United States were used to stabilize or otherwise improve the engineering characteristics (plasticity, moisture-density, and California Bearing Ratio) of the soils. (Author)

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD- 745 408 8/13 13/2

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILLStabilization Studies: Afghanistan  
Soils. (U)

DESCRIPTIVE NOTE: Final rept.,  
JUN 72 17P Aufmuth, Raymond E. ;  
REPT. NO. CERL-TR-M-18

## UNCLASSIFIED REPORT

DESCRIPTORS: (\*SOILS, STABILIZATION), (\*AFGHANISTAN,  
SOILS), FEASIBILITY STUDIES, LIMESTONE, CEMENTS,  
MOISTURE, WEAR RESISTANCE, ICE, CHEMICAL REACTIONS,  
FLEXURAL STRENGTH, TEST METHODS, BASALT  
IDENTIFIERS: SOIL STABILIZATION (U)  
(U)

The report summarizes a study of the feasibility of stabilizing or otherwise improving for construction purposes three unsuitable soils found in Afghanistan. The stabilizing agents used were lime and cement commercially available in Afghanistan. Test results indicated that all three soils can be effectively stabilized with the addition of lime or cement. All three soils are reactive with lime or cement and will readily combine to increase strength and durability with the resulting stabilized soils being suitable for construction. (Author)

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UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD- 742 781 13/8

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILL

Investigation of Techniques for Butt Splicing  
Rebars. (U)

DESCRIPTIVE NOTE: Final rept.,

APR 72 37P Ford, W. D. ;  
REPT. NO. CERL-TR-T-1

UNCLASSIFIED REPORT

DESCRIPTORS: (\*STEEL, JOINTS), BONDING, WELDING, TEST  
METHODS, COSTS, TIME, PERFORMANCE(ENGINEERING) (U)  
IDENTIFIERS: BUTT WELDING, WELDS, SPLICING, STRUCTURAL  
STEEL, EVALUATION (U)

The objective of the study was to investigate,  
test, and evaluate methods of butt splicing  
reinforcing bars, including mechanical splices,  
thermit splices, and welded splices on 408, 432, and  
437 structural steel. Tests were performed to  
evaluate comparatively the tensile behavior of the  
connection, conductivity, and cost-time factor of  
fabrication. Test results are presented in  
graphical and tabular form. (Author) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD- 742 214 13/2 1/5

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILL

Small-Scale Static Load Model Study:  
Behavior of Rigid Pavement Loaded Near the  
Edge. (U)

DESCRIPTIVE NOTE: Final rept.,

APR 72 28P Behrmann, Ruth M. ;  
REPT. NO. CERL-TR-S-4  
PROJ: AF-5224

UNCLASSIFIED REPORT

DESCRIPTORS: (\*PAVEMENTS, STRESSES), (\*RUNWAYS,  
LOADS(FORCES)), MODEL TESTS, SCALE, SIMULATION,  
STRAIN(MECHANICS), TEST METHODS, STRAIN GAGES, GYPSUM (U)  
IDENTIFIERS: \*PAVEMENTS, \*RIGIDITY (U)

The report presents the results of a small-scale  
static load model study of aircraft runway pavements.  
It examines the effects of loading a rigid slab on  
an elastic foundation in the transitional area  
between the edge and interior of the slab. The  
model was a 0.130-in. thick Hydrostone slab  
supported by a 12 in. thick layer of natural rubber.  
The slab was instrumented with Type A-7, SR-4  
electrical strain gages mounted along one centerline  
of the slab. The strain gages were positioned to  
indicate strains parallel and perpendicular to the  
edge, from the edge to the center of the slab. The  
behavior of the slab was observed by noting the  
change in strain effected by loads applied statically  
through circular footprints at various points along  
the instrumented centerline. The results are  
presented in non-dimensional terms. (U)

AD- 742 781

UNCLASSIFIED

PAGE

288

AD- 742 214

UNCLASSIFIED

099062

## UNCLASSIFIED

CDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD- 742 213 8/13 13/2

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN ILL

Stabilization of Inorganic Silts: Panamanian Soils. (U)

DESCRIPTIVE NOTE: Final rept.,  
APR 72 17P Aufmuth, Raymond E. ;  
REPT. NO. CERL-TR-M-15

## UNCLASSIFIED REPORT

DESCRIPTORS: (\*SOILS, STABILIZATION). (\*ROADS, PANAMA).  
SILT, STABILIZATION, FEASIBILITY STUDIES, PHYSICAL  
PROPERTIES, CHEMICAL PROPERTIES, CONSTRUCTION,  
ADDITIVES, CALCIUM OXIDES, CEMENTS, EFFECT:CHES  
IDENTIFIERS: EVALUATION (U)  
(U)

Soil stabilization studies were conducted on two soil types from different slide areas along the Boyd-Roosevelt Highway, Panama. Physical and chemical properties of the soils were evaluated to determine if the soils could be stabilized or otherwise improved for construction purposes. Selected engineering properties, unconfined compressive strength and California bearing ratio (CBR), were determined for the soils in their natural state and after mixing them with lime and cement. Soil improvements resulting from the stabilizing agents were evaluated. (U)

AD- 742 213

UNCLASSIFIED

PAGE

289

## UNCLASSIFIED

CDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD- 742 212 1/5 11/9

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN ILL

Coefficient of Linear Thermal Expansion of Epoxy Resin Mortars. (U)

DESCRIPTIVE NOTE: Final rept.,  
APR 72 16P Kempfues, Robert F. ;  
REPT. NO. CERL-TR-M-14  
PROJ: AF-5224  
TASK: 522402

## UNCLASSIFIED REPORT

DESCRIPTORS: (\*EPOXY RESINS, THERMAL EXPANSION).  
(\*RUNWAYS, MAINTENANCE). SHEAR STRESSES, SHRINKAGE,  
CONCRETE, FAILURE(MECHANICS), CONSTRUCTION MATERIALS,  
MOISTURE, TEMPERATURE (U)  
IDENTIFIERS: AGGREGATES, PORTLAND CEMENTS (U)

IAC ACCESSION NUMBER: PL-018172

IAC DOCUMENT TYPE: PLASTIC-MICROFICHE--

This study has revealed that there is a significant difference in the coefficients of linear thermal expansion of the various epoxy resin mortar systems tested; they are two-to-four times greater than the accepted value for portland cement concrete. As expected, the coefficient decreases with an increase in aggregate content for dry, unsaturated specimens. However, it appears that there is an optimum aggregate content for saturated specimens after which the coefficient increases as aggregate content is increased. Absorbed moisture increases the coefficient of thermal expansion; therefore epoxy resin mortars and concretes should be designed to prevent absorption by selection of the proper aggregate-to-binder ratio and by placement techniques that will provide a dense impermeable patch. Maximum shrinkage is generally achieved within two months when curing occurs at 73 F and a relative humidity of 55%. Pavement temperatures during and shortly after repair is made, may influence the amount of stresses that develop in the resin concrete due to curing. (Author, modified-PL) (U)

IAC SUBJECT TERMS: P--(U)Thermal expansion-Epoxy,  
Physical properties-Epoxy, Mortars-Epoxy, Curing-  
Epoxy, Mixing-Epoxy, Casting-Epoxy, Moisture  
absorption-Epoxy, ZZ Unlimited;

AD- 742 212

UNCLASSIFIED

099062

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099052

AD- 741 358 13/3 11/4 13/2

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILL

Fiber Reinforced Concrete a General  
Discussion of Field Problems and  
Applications. (U)

DESCRIPTIVE NOTE: Technical manuscript.,  
APR 72 19P Gray, Bobby H. ;  
REPT. NO. CERL-TM-W-12

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: Revision of report dated Dec 71.

DESCRIPTORS: (\*REINFORCED CONCRETE, FIBERS),

(\*PAVEMENTS, REINFORCED CONCRETE), REINFORCING

MATERIALS, STEEL, STRUCTURAL MEMBERS, MECHANICAL

PROPERTIES, PROCESSING (U)

IDENTIFIERS: \*FIBER REINFORCED CONCRETE, \*STEEL  
FIBERS (U)

The paper presents field problem, which are associated with the use of a concrete containing randomly oriented uniformly distributed short lengths of fibers (fibrous concrete). Mix formulation and field handling characteristics often determine whether a new material is suitable for an application. Any alterations in the standard procedures will be reflected in different uses of the material. The results of mix formulation and field handling experience with the use of fibrous concrete are presented and several possible applications are discussed. (Author) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD- 741 357 13/3 13/2 11/4

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILL

Fibrous Concrete for Pavement  
Applications. (U)

DESCRIPTIVE NOTE: Preliminary rept.,  
APR 72 17P Gray, Bobby H. ;  
REPT. NO. CERL-PR-W-13  
PROJ: DA-4-A-062112-A-891

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: Revision of report dated Feb 72.

DESCRIPTORS: (\*REINFORCED CONCRETE, FIBERS),

(\*PAVEMENTS, REINFORCED CONCRETE), STEEL, REINFORCING

MATERIALS, MECHANICAL PROPERTIES, WEAR RESISTANCE

IDENTIFIERS: PORTLAND CEMENT, \*FIBER REINFORCED

CONCRETE, \*STEEL FIBERS (U)

A new paving material was introduced which provides outstanding performance from thin pavement sections. The material is called fibrous concrete and is composed of conventional portland cement concrete materials with steel fibers randomly dispersed throughout the concrete mass. The material exhibits highly desirable behavioral properties for pavement applications. High first crack strength, ability to carry load after cracking, ability to arrest cracks and high spall resistance and ductility are some of the advantages offered by fibrous concrete over conventional concrete. (Author) (U)

AD- 741 358

UNCLASSIFIED

PAGE

290

AD- 741 357

UNCLASSIFIED

099062

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD- 732 855 13/13

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILL

Study on the Potential Use of Industrialized  
Building for the Department of the Army.  
Volume II: Appendices. (U)

AUG 71 161P Bagby,D. Gordon :Dinnat,  
Robert M. :Moyer,Christopher A. ;

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: See also Volume 2, AD-732 854.  
DESCRIPTORS: (\*ARMY, \*PREFABRICATED BUILDINGS),  
CONSTRUCTION, PERFORMANCE(ENGINEERING), STRUCTURES,  
WALLS, ROOFS, PANELS(STRUCTURAL), STANDARDS, SANITARY  
ENGINEERING, HEATING, COOLING + VENTILATING EQUIPMENT,  
ELECTRICAL EQUIPMENT (U)  
IDENTIFIERS: RECOMMENDATIONS, \*INDUSTRIALIZED  
BUILDINGS (U)

Recommended construction criteria in industrialized  
building systems are given for subsystems, including  
structure, exterior walls, roof/ceilings, floors,  
interior partitions, plumbing, HVAC, and electrical  
equipment. Comments and recommendations are  
included. (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD- 732 854 13/13

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILL

Study on the Potential Use of Industrialized  
Building for the Department of the Army.  
Volume II: Narrative. (U)

AUG 71 128P Bagby,D. Gordon :Dinnat,  
Robert M. :Moyer,Christopher A. ;

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: See also Volume 1, AD-732 853 and  
Volume 3, AD-732 855.  
DESCRIPTORS: (\*ARMY, \*PREFABRICATED BUILDINGS),  
CONSTRUCTION, SYSTEMS ENGINEERING, MANUFACTURING  
METHODS, REVIEWS, COSTS, DESIGN, COMPATIBILITY, ARMY  
PROCUREMENT, CLASSIFICATION, PERFORMANCE(ENGINEERING),  
DATA PROCESSING SYSTEMS (U)  
IDENTIFIERS: \*INDUSTRIALIZED BUILDINGS (U)

The study had six principal goals: (1) To  
provide background information on the history,  
characteristics and direction of industrialized  
building; (2) To measure the present  
capabilities of the industrialized building industry  
and assess its probable response to programmed  
military construction; (3) To identify  
industrialized building systems suitable for  
employment in the Army's military construction  
program; (4) To suggest locations most amenable  
to industrialized building; (5) To identify and  
discuss possible procurement and implementation  
procedures; and (6) To provide comparisons  
between conventional and industrialized construction  
costs and construction durations. (Author) (U)

AD- 732 855

UNCLASSIFIED

PAGE 291

AD- 732 854

UNCLASSIFIED

099062

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 039CG2

AD- 732 853 13/13

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN ILL

Study on the Potential use of Industrialized Building for the Department of the Army. Volume I: Summary.

(U)

DESCRIPTIVE NOTE: Final rept.,

AUG 71 11P Bagby, D. Gordon ; Dinnat, Robert M. ; Moyer, Christopher A. ;

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: See also Volume 2, AD-732 854.

DESCRIPTORS: (\*ARMY, \*PREFABRICATED BUILDINGS), CONSTRUCTION, INDUSTRIES, ARMY PROCUREMENT, COST EFFECTIVENESS, SYSTEMS ENGINEERING, CORRELATION TECHNIQUES

IDENTIFIERS: \*INDUSTRIALIZED BUILDINGS

(U)

(U)

The study had six principal objectives: To provide background information on the history, characteristics and direction of industrialized building; To measure and document the present capabilities of the industrialized building; To identify industrialized building systems suitable for employment in the Army's military construction program; To suggest locations where industrialized building is likely to be most economical; To identify and discuss possible procurement and implementation procedures; and To provide comparisons between conventional and industrialized construction costs and construction durations. The number was ascertained of the firms within the continental United States which evidenced the requisite design, procurement policies, and production capabilities to meet immediate military construction needs. Additional firm products were tabulated that were suitable for use in selected building types in particular geographical regions. Joint purchasing consortiums with some civilian agencies proximate to military installations are noted as possible during the intermediate range MCA Program. Cost comparisons are made.

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AD- 732 853

UNCLASSIFIED

PAGE

292

AD- 729 681

UNCLASSIFIED

099082

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD- 729 661 8/13 13/2

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN ILL

Stabilization Studies: Turkish Soils.

(U)

DESCRIPTIVE NOTE: Final technical rept.,

JUL 71 14P Aufmuth, Raymond E. ;

REPT. NO. CERL-TR-M-8

UNCLASSIFIED REPORT

DESCRIPTORS: (\*SOILS, STABILIZATION), (\*PAVEMENTS, CONSTRUCTION), PHYSICAL PROPERTIES, CHEMICAL PROPERTIES, COMPRESSIVE PROPERTIES, CALCIUM COMPOUNDS, OXIDES, CLASSIFICATION, MOISTURE, LOADING(MECHANICS), DENSITY, CEMENTS

(U)

IDENTIFIERS: BEARING STRENGTH, \*SOIL

STABILIZATION

(U)

The report summarizes the results of a study to determine the physico-chemical and strength properties of three Turkish soils and to determine methods of improving these properties. Lime and cement obtained locally were used as stabilization agents for soils no. 1 and no. 2; U.S. lime and Turkish cement were used with soil no. 3. Soil no. 1 (from Uskumro) was stabilized with lime, but no strength increase was obtained with the addition of cement. Soil no. 2 (from Umraniye) showed no reaction with lime, but demonstrated a considerable strength increase with the addition of cement. Soil no. 3 (from Incirlick) is reactive with both lime and cement and could be effectively stabilized by both.

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(Author)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD- 729 660 11/6

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN ILL

Feasibility of Producing Directionally Transformed Martensite in Steel.

(U)

DESCRIPTIVE NOTE: Preliminary rept., JUN 71 16P Quattrone, Robert ;Wayman, C.

Marvin ;  
REPT. NO. CERL-PR-W-7

UNCLASSIFIED REPORT

DESCRIPTORS: (\*STEEL, PHASE STUDIES), GRAIN STRUCTURES(METALLURGY), MARTENSITE, HARDENING, FEASIBILITY STUDIES

IDENTIFIERS: ORDER DISORDER TRANSFORMATIONS (U)

IAC ACCESSION NUMBER: MCIC-082218

IAC DOCUMENT TYPE: MCIC -HARD COPY--

The feasibility of and possible techniques for strengthening steel by using directional martensite are explored in this report. On the basis of an analysis of the austenite to martensite transformation, it appears that martensite can be oriented if (a) its parent, austenite, can first be oriented and (b) the activity of habit planes can be controlled. It is believed that the first of these can be accomplished by forming deformation and/or annealing textures, and the second, by using a martensite morphology with a low habit plane multiplicity and straining in a specific crystallographic direction during transformation. Steels strengthened by this technique may obtain ultra-high strength and stiffness by a mechanism similar to fiber reinforcement. Applications for such a material include high-strength wires, protective construction and site hardening, and light-weight armor. (Author)

(U)

IAC SUBJECT TERMS: M--(U)FE-30NI, FE-32NI, ENGINEERING STEELS, PLATE, CARBON ADDITION, DEFORMATION, ANNEALING, MARTENSITE TRANSFORMATION, STRENGTHENING, STIFFNESS, FATIGUE PROPERTIES;

AD- 729 660

UNCLASSIFIED

PAGE

293

AD- 728 169

UNCLASSIFIED

099062

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD- 728 169 13/3 11/9

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN ILL

A Feasibility Study on the Use of Foam-in-Place Urethane Insulation in Masonry Cavity Walls.

(U)

DESCRIPTIVE NOTE: Final rept., JUN 71 24P Martino, Anthony C. ;

REPT. NO. CERL-TR-A-2  
PROJ: CERL-OK-1

UNCLASSIFIED REPORT

DESCRIPTORS: (\*THERMAL INSULATION, \*EXPANDED PLASTICS), (\*CONSTRUCTION MATERIALS, THERMAL INSULATION), (\*ISOCYANATE PLASTICS, EXPANDED PLASTICS), TEST METHODS, COSTS, MOISTURE, PHYSICAL PROPERTIES, TOXICITY, SPECIFICATIONS, ECONOMICS

(U)

IAC ACCESSION NUMBER: PL-017868

IAC DOCUMENT TYPE: PLASTIC -MICROFICHE--

A thorough survey of manufacturers, system suppliers, and installation contractors of foam products was conducted to determine the physical properties and technical nature of the application. Building codes and standard military and federal specifications were researched to investigate the acceptance of urethane foam insulation in masonry cavity walls. Installation and operating cost estimates were made for the various insulation systems in temperature zones of - 20 F, 0 F, and 20 F. This investigation revealed that rigid urethane foam has impressive physical properties. It has an excellent thermal efficiency and a high strength low weight ratio, and its closed cell nature gives it good moisture resistance and stability. Although small-scale ASTM tests give urethane a non-burning rating, Factory Mutual Research Corporation demonstrated that urethane will support combustion when the ignition source is removed. However, Factory Mutual concludes that foamed-in-place urethane that completely fills a wall cavity does not significantly contribute to the fire hazard of a building. Major drawbacks of the application include adverse effects of hot and cold temperatures, moisture, and humidity on foam quality, health and safety problems in installation, and high application

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD- 724 132 1/5 13/2

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN ILL

Airfield Pavement Systems. (U)

DESCRIPTIVE NOTE: Final rept.,  
APR 71 23P Murphree, E. Lile, Jr.;  
Woodhead, Ronald W.; Wortman, Robert H.;  
REPT. NO. CERL-TM-P-1

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: Presented at the American Society of Civil Engineers National Meeting on Transportation held in Boston, Mass., 13-17 Jul 70.

DESCRIPTORS: (\*LANDING FIELDS, \*PAVEMENTS),  
LOADS(FORCES), JET TRANSPORT PLANES, SYSTEMS  
ENGINEERING, MANAGEMENT PLANNING AND CONTROL, AVIATION  
SAFETY, COST EFFECTIVENESS, HUMAN FACTORS ENGINEERING,  
STATISTICAL ANALYSIS (U)  
IDENTIFIERS: CRITERIA (U)

The current airfield pavement design procedures were introduced nearly thirty years ago. At that time, structural support problems had a dominant effect on design procedures. When other requirements were considered in the design process, they were treated in an ad-hoc manner as difficulties arose. With the arrival of the jumbo jets, the importance of the pavement to the air transport system is apparent. The aerospace industry predicts 5 times the passenger miles and 10 to 20 times the cargo tonnage by 1985 as today. Airplanes are expected to be twice the size and weight of those currently flying. The demands of these large, heavy, high performance aircraft will be more rigorous than those of today and a new and comprehensive look at the pavement's role is needed. The systems approach holds the key to an integrated plan for design, construction, operation, and maintenance of airfield pavements. (Author) (U)

AD- 724 132

UNCLASSIFIED

PAGE

294

AD- 720 993

UNCLASSIFIED

099062

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD- 720 993 8/13 13/2

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN ILL

Burma Soils. A Study of the Effects of Lime and Cement on Paddy and Laterite Material. (U)

DESCRIPTIVE NOTE: Final rept.,  
MAR 71 20P Schomaker, Norbert B.;  
Aufmuth, Raymond E.;  
REPT. NO. CERL-TR-M-6

UNCLASSIFIED REPORT

DESCRIPTORS: (\*SOILS, \*BURMA), (\*ROADS, CONSTRUCTION),  
STRUCTURAL PROPERTIES, FOUNDATIONS(STRUCTURES),  
STABILIZATION, CALCIUM COMPOUNDS, CARBONATES, CEMENTS,  
TRAFFICABILITY, COMPRESSIVE PROPERTIES (U)  
IDENTIFIERS: LATERITE SOILS, \*SOIL STABILIZATION (U)

Laboratory tests were performed on samples of paddy and laterite soils obtained from the proposed right-of-way of the Rangoon-Mandalay Highway, Burma. These tests were conducted to determine the basic engineering properties of the soils and to evaluate the feasibility of stabilizing these soils with lime and cement. The addition of lime to these soils had little beneficial effect on either soil. This was due to the non-reactive nature of the soils and the poor stabilizing quality of the lime available in Burma. Special tests using American lime indicated a strength increase of about 300% over the natural soil strength, compared to an increase of less than 100% with Burma lime. Addition of cement, on the order of 6% by dry weight of soil, effectively stabilizes both soils. Unconfined compressive strengths of both are increased on the order of 300%. (Author) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD- 715 400 13/2

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN  
ILLStrength and Durability of Stabilized Layers  
under Existing Pavements.

(U)

DESCRIPTIVE NOTE: Final technical rept.,

OCT 70 16P Aufmuth, Raymond E. ;

REPT. NO. CERL-TR-M-4

UNCLASSIFIED REPORT

DESCRIPTORS: (\*PAVEMENTS, FOUNDATIONS(STRUCTURES)),  
(\*SOILS, STABILIZATION), CEMENTS, LIMESTONE, CARBONATES,  
WEAR RESISTANCE, COMPRESSIVE PROPERTIES, MOISTURE,  
DENSITY, SHEAR STRESSES, CLASSIFICATION, SITE SELECTION,  
PERFORMANCE(ENGINEERING), X RAY DIFFRACTION,  
AGING(MATERIALS)

IDENTIFIERS: BEARING STRENGTH, SOIL STABILIZATION  
(U)  
(U)

The report summarizes the results of a field and laboratory study to evaluate the strength and durability of stabilized layers under existing pavements. Eight sites in different geographic and climatic regions of the country were tested, using lime and cement as the stabilizing agents. Tests performed on the subgrade were laboratory and field California Bearing Ratio, unconfined compression, moisture-density, classification, and x-ray diffraction analysis. (Author)

AD- 715 400

UNCLASSIFIED

PAGE

295

AD- 711 526

UNCLASSIFIED

099062

## UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD- 711 526 20/11 13/13 14/5

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLFEASIBILITY STUDY OF PHOTOMECHANICS TECHNIQUES  
APPLIED TO STRESS ANALYSIS IN THREE  
DIMENSIONS.

(U)

DESCRIPTIVE NOTE: Final rept.,

OCT 69 77P Hubbard, John M. ;

REPT. NO. CERL-TR-4-84

UNCLASSIFIED REPORT

DESCRIPTORS: (\*PHOTODELASTICITY, STEREOPHOTOGRAPHY),  
(\*UNDERGROUND STRUCTURES, STRESSES), FEASIBILITY  
STUDIES, MODEL TESTS, LOADS(FORCES), PHOTOGRAPHS,  
PHOTOGRAPHY, LASERS

IDENTIFIERS: \*HOLOGRAPHY

(U)  
(U)

The report presents the results of a study into the experimental techniques of full field representation applicable to stress analysis in three dimensions. The simple case of the distribution of stress on the boundary of a circular discontinuity in an elastic half space was examined from the viewpoint of existing theory and verified by model analysis employing eight experimental approaches. Two models were two dimensional in nature and provided an experimental standard for the other models as well as a demonstration of the flexibility of experimental stress analysis. The most accurate representation of stress distribution for the three dimensional models were the Frozen Stress and Scattered Light models. Less accurate representations were obtained with the Composite, Embedded Polariscope and Embedded Moire Models. Finally, the feasibility was investigated of applying the techniques of Holography to photoelastic model. Each of these approaches is discussed in detail, and the advantages and disadvantages of each critically examined. (Author)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099032

AD- 710 982 1/5 13/1

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLDEVELOPMENT STUDY FOR A VFR HELIPORT STANDARD  
LIGHTING SYSTEM. (U)

DESCRIPTIVE NOTE: Final technical rept.,  
AUG 70 135P Morrow, T. H., Jr;  
REPT. NO. CERL-TR-M-3

## UNCLASSIFIED REPORT

DESCRIPTORS: (\*HELIPORTS, \*LIGHTING EQUIPMENT), BEACONS,  
VISUAL PERCEPTION, FLIGHT CONTROL SYSTEMS, TEST METHODS,  
CONFIGURATION, INCANDESCENT LAMPS, APPROACH, NIGHT  
LANDINGS, SIMULATION, NIGHT FLIGHT, QUESTIONNAIRES, ARMY  
RESEARCH (U)  
IDENTIFIERS: \*VISUAL FLIGHT RULES (U)

The report describes a four part study directed  
toward a standard lighting system for heliport under  
visual flight rule (VFR) conditions. The  
investigation includes a laboratory model study, a  
preliminary field layout and two heliport installation  
tests using actual helicopter flight operations.  
Results were analyzed by pilot questionnaires and  
interviews. Tentative recommendations for further  
testing are presented including all particulars of a  
heliport lighting system. (Author) (U)

AD- 710 982

UNCLASSIFIED

PAGE

296

AD- 695 719

UNCLASSIFIED

099062

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 099062

AD- 695 719 11/4 20/11 13/2

CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
ILLCRITICAL NORMAL FRACTURE STRAIN OF PLAIN AND STEEL  
WIRE FIBROUS-REINFORCED CONCRETE. (U)

DESCRIPTIVE NOTE: Final rept.,  
OCT 69 212P Birkimer, Donald L.;  
REPT. NO. M-1  
PROJ: DASA-NWER-R13B193

## UNCLASSIFIED REPORT

DESCRIPTORS: (\*FIBERS, REINFORCING MATERIALS),  
(\*REINFORCED CONCRETE, STRAIN(MECHANICS)),  
FRACTURE(MECHANICS), WIRE, STEEL, IMPACT TESTS, TENSILE  
PROPERTIES, MODULUS OF ELASTICITY, SYNTHETIC FIBERS,  
STANDARDS, COMPRESSIVE PROPERTIES, FLEXURAL STRENGTH,  
MILITARY REQUIREMENTS (U)  
IDENTIFIERS: \*FIBER REINFORCED CONCRETE (U)

The report presents the results of a series of  
eighty-one impact tests performed on 5.1 x 88.9-cm  
(2.0 x 35.0-in.) cylindrical test specimens.  
The cylinders consisted of either plain or steel  
wire fibrous-reinforced concrete. Basic properties  
relating to the concrete test specimens used were  
quantitatively evaluated: static ultimate tensile  
strength and the corresponding ultimate tensile  
strain; static initial Young's modulus of  
elasticity; static ultimate unconfined compressive  
strength, specific gravity, mass density; seismic  
velocity; dynamic Young's modulus of elasticity.  
Histograms for the frequency distributions of basic  
material properties show variations of these  
properties within the experiment. The results  
revealed that the critical normal fracture strain  
(critical value of tensile strain which causes  
fracture of the material) of the materials tested  
is functionally dependent on the rise times of the  
straining pulse. The results also showed that the  
critical normal fracture strain of plain concrete can  
be increased by the inclusion of the randomly placed  
steel wire fibre of the type tested. (Author) (U)

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SEARCH CONTROL NO. 099062

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